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The Need for a Latin American Economic Time-Table

By Elgin Williams*

"The main thing I want from you," said the American ambassador to the President of Argentina, "is your autographed photograph." We read on about Juan Perón's good friend James Bruce:

> At dinner he got it, a huge picture inscribed to *"mi gran amigo"*. He also got a *Peronista* button for his lapel and a small "loyalty medal", an unofficial *Peronista* emblem which the President had previously given only to members of his household.
>
> Perón and Bruce seemed to hit it off well together. Bruce, a millionaire who knew how to run a business, never lost a chance to lecture the President on economics. "Let the Argentine economy alone," he kept repeating. "Don't tinker with it." [1]

Now we learn that in Santiago a student protest against increased bus fares has turned into "ugly rioting over the cost of living".

> The rioters even tried to rush La Moneda, the presidential palace, but tear gas held them off until palace guards could

* Mr. Williams is Assistant Professor of Economics at Reed College.

[1] *Time*, August 29, 1949, p. 26.

slam shut the great wooden doors. President Gabriel Gonzalez Videla . . . gave his cabinet a nutshell diagnosis of the situation: "The Communists have taken advantage of the students. We have to stop them at once." Then he put the riot-torn city under military rule, and went into a huddle with his aides to draft a message to Congress asking for special powers.

At week's end, Gonzalez faced what he called another Communist attempt to oust his government. At the undersea coal mines at Lota, south of Santiago, hundreds of strikers . . . tried to seize the mines. There were also walkouts in the nitrate and copper mines of northern Chile. Again moving quickly, Gonzalez sent armed forces into six strike-hit provinces with orders to take over mines and communications and isolate the strike areas.

The ear-to-the-ground President knew that all the unrest could not be blamed on Communists. "Special powers are not enough," he said. "We must put an end to the origin of the evil . . . The Communists took advantage of the situation, but also the self-interest of some other quarters is much to blame. Capital was given remunerative prices; now it is time for workers to get the same." He proposed reforms in public medical care, better pension laws. And he ordered bus fares reduced.[2]

Thus two small items in one week's inter-American economic affairs. When cost-of-living riots in Chile and lectures on free enterprise in Argentina are joined in the news by dollar shortages, loans from the Export-Import Bank, petroleum concessions, trade conferences, syndicalist labor movements, and revolutions, the economist trying to make sense out of Latin American developments feels a pressing need for some conceptual framework larger than that afforded by traditional price analysis. How find unity in the multiplicity? How make order of the chaos?

This need for a conceptual framework can be expressed in another way as a need for what might be called an economic "time-table." After all, it is a multiplicity of *events* which

[2] *Ibid.*

challenge the economist specializing in Latin American affairs. The order he seeks is largely *temporal* order: why are things happening when they do, in conjunction with what other events in the rest of the world, and what may their schedule be expected to be in the future?

The present article attempts to sketch one kind of timetable, or conceptual framework, which might prove of value to workers in the inter-American field. These students find passing through their hands innumerable printed materials, ranging from news reports to multi-volume scholarly treatises. Most are empirical, descriptive, chronological narrative, devoted to specific problems and unrelated to larger developments. Faced with this kind of material Latin American specialists need to ask in each case the question: Of what wider sequence of events are the present events a part? On what wave of the tides washing around the world do we now focus?

* * *

Most economists would agree that the root event of the modern era is the Industrial Revolution. The state of industrialization in which any given country or region of the world finds itself at any given time goes a long way toward explaining its economic situation at that time. This is true not only of internal economics but of related internal political and social developments, and not only these but the country's external relations with other societies, each of which in its turn is directly and indirectly the creature of that continuing series of transformations of productive activity which we sum up as "the" Industrial Revolution. Universal recognition of the key role of "the march of science and technology" in the modern world suggests that here is a clue for our Latin American time-table.

Already things begin to fall into place, and our pulses quicken at the vistas opened up along this line of vision. We recall that President Perón's whole regime in Argentina is, in one important aspect, a *revanche* or reaction against that economic invasion of South America which began in the early nineteenth century, an invasion stemming in particular from the home of the Industrial Revolution: Great Britain. We go on to note that the industrialization of the United States has made it

the inheritor of Great Britain—of her enmities as well as her markets—and it is this fact which gives weight to the words of American ambassadors, as to the beliefs and opinions of Americans generally. In the twentieth century the United States is "the workshop of the world" just as it is the arsenal of democracy, and both her economic and military preeminence are indications that here, for the moment, the Industrial Revolution is most at home.

And as for the Communists in Chile? Surely we now recognize that Communism is a factory-made product, an expression of the steam age along with railroads and ocean-going ships. It is no accident that Engels was a factory manager, and that he and Marx did much of their work in England, the seat not only of the spinning jenny and the power loom but of the Diggers, Chartism, and the first International Workingmen's Association. Socialism, as a recent writer [3] reminds us, is "both a modern and a western phenomenon", and this should not be obscured by the fact that, early exported to Russia, it is now being re-exported under Russian auspices not only to Chile but to every part of the globe. Marx is an authentic child of the machine, a true philosopher of the Industrial Revolution. And clearly it is this "subjection of nature's forces to man . . . application of chemistry to industry and agriculture . . . clearing of whole continents for cultivation . . . whole populations conjured out of the ground" [4] with its attendant differential effects on Capital and workers which is "the origin of the evil' in Chile and elsewhere. The power loom, Marx often said, is a more dangerous revolutionary than any trade union leader—and, he might have added, than himself. For it is industrial machinery, with its auxiliaries such as the printing-press, which in the last analysis produces those situations of which, as President Gonzalez is well aware, Communists only take advantage.

But the mention of Communism brings us to the principal events of the last decade: the Second World War and its upshot, the Cold War. Obviously the economic developments in Latin America for some time to come will proceed in an environment

[3] Paul M. Sweezy, *Socialism* (New York, 1949) p. 91.
[4] *The Communist Manifesto*, quoted by Sweezy, p. 207.

determined at large and in detail by the world crusade of bolshevism and the counter-crusade of American democratic capitalism. Consequently it is the developments in the world balance of power since 1939, and the posture of economic affairs that furnished the point of departure for these developments, to which we must now turn. Here we may test the explanatory steel of the Industrial Revolution against the hardest enigmas of our time, and here we chronicle the forces which, moving according to a complicated yet definite time-table, are, among other things, in Latin America battering down the great wooden doors of some palaces and putting into power in others fuehrers and generalissimos strangely reminiscent of Hitler and Stalin.

* * *

The industrial system changes the way men work, but it also changes the way they think. Social revolutions accompany revolutions in production. Not only does the machine tend to abolish common labor, making every job a skilled job in a process in which a confraternity of specialists replaces the division of society into high and low, giving ground to think technology the true classless society, but with the machine comes the corroding skepticism of science. Study of the strain to which the ancient feudalisms of Germany, Japan, and the Middle East, as well as Latin America, have become subject with industrialization convinces us that, as the sociologist Robert M. MacIver puts it, "high-level technology and fixed social classes are incompatible.' [5]

Yet the incompatibility of twentieth-century technique and social and economic institutions of earlier vintage is like that of any unsuccessful marriage. The incompatibiltiy does not reveal itself all at once, but in a series of difficulties and attempted adjustments, and there are a number of brawls and

[5] The classic study of this process is Thorstein Veblen, *Imperial Germany and the Industrial Revolution* (New York, 1915). Professor Arnold J. Toynbee has devoted much attention to it, particularly in *Civilization on Trial* (New York, 1948). A brief and non-professional but extremely suggestive analysis of the contemporary scene is Isabel Cary Lundberg, "World Revolution, American Plan" (*Harper's* January, 1949, pp. 38-46) and it is from her account that the quotation from Professor MacIver is taken.

explosions before the inevitable divorce. Moreover the course of each union of industrialism and social system varies with the age of the partners at the time of the original contract and the course of neighboring matches during its life.

A rough but accurate generalization would show that in the crucial years following 1929 the economic state of affairs in the United States and Western Europe could be summed up as twentieth-century technology plus eighteenth-century (and earlier) social ideas and institutions. These latter ranged from myths and customs of property ownership dating from the days of Queen Elizabeth and John Locke to democratic procedures of adjustment to the difficulties attendant upon the exercise of these "private" rights in a society based on large-scale mass production. Germany, by contrast, presented the spectacle of a high-speed, up-to-date, thoroughly twentieth-century industrial machine in the keeping of a populace unused to parliamentary democracy (although slowly becoming used to it) and containing a feudal-minded elite willing and anxious to "turn the clock back" to the Middle Ages.

The result we know. The United States and Western Europe, although they escaped dictatorship and the loss of their civil liberties, were unable to prevent a Great Depression of world wide proportions. And it was this same Great Depression which provided the unemployment and social chaos on which Hitler rode to power. The point, so far as our Latin American time-table is concerned, is this: the Second World War resulted from the coincidence of *two* separate cycles — the Western "business cycle" in depression phase, and the German "war cycle", still in its undemocratic or fuehrer-incipient stage. *If* the depression spreading from the United States had occurred ten or twenty years later, when parliamentary traditions had perhaps attained a firmer foothold in Germany, or *if* our inherited eighteenth-century economic institutions had been exposed to the rationalizing influence of science and industrialism for just one more generation, and the depression prevented by reform, how different the result might have been! Or, on the other hand, *if* corrosive "Western" ideas had had another score of years to undermine the fifteenth-century German character-structure, perhaps the Reich could have come through the de-

pression without reaction, scarred and with someone like "that man in the White House" in the Reichs-chancellery to consternate the conservatives but nevertheless without Hitlerism!

But there are no ifs in history. Let us leave the pleasures of what-might-have-been to the formulation of what-was in "time-table" terms, with specific reference to the Industrial Revolution. The internal economics of 1929-33 spelled depression for both the United States and Germany, and the related internal political and social developments were the New Deal and the New Order, respectively. After 1933 the United States and the democracies of Western Europe found themselves faced with an expanding Germany which was an amalgam of twentieth-century industrial *Panzer*-divisions and age-old schemes of conquest, and it was this creature of the Industrial Revolution, half-baked style, which determined their external relations and also those of the Latin American countries in a most critical period of their history.

Thus the graduates of World Polytechnic, classes of 1929-39 inclusive. It remains to mention the territorial expansions during and since the war of another feudal warrior in modern armor, Soviet Russia, like Germany a half-baked creature of high-level technology, and the resulting posture of world affairs today. It still remains to be seen whether the Western countries have the wit or the experience of scientific method to find the formula to prevent another depression and a new opportunity for Hitler's heir, Stalin, or whether the Stalinist countries themselves will begin in time to acquire the "Western" ways in politics which are the inevitable companions of those ways in machine-tools, and thus spare the world another war. This war, of course, and again for reasons of the ongoing Industrial Revolution, would coincide with the development of atomic energy, and would for that reason probably bring our time-table to a close.

* * *

What of Latin America in this larger picture? No economist has ever attempted to explain modern developments in the countries to the south in any other way than by reference to the old bottles of Conquest and pre-Conquest social and economic arrangements and the new wine of industrialism and its co-

partner, democracy. The old bottles, needless to add, include the structures of British and *Yanqui* imperialism, and so it is not surprising that modern labor and agrarian movements lumped Western with native anachronisms, as foreign capitalists "roused against themselves the hatred that raged against the *latifundistas*." [6]

The point here, however, is that both the foreign capitalists and the hatred still being organized against them were brought to Mexico and Chile and Argentina and the other countries by the ships and derricks and railroads and generators and mining machinery of the Industrial Revolution. And this same revolution also brought Marxism, by the roundabout process already mentioned, and democratic notions of economic reform and extension of the suffrage which is its prelude, by the radio and the printing press.[7]

Not all of the Latin American story is so spectacular, of course. A great deal of the meaning of the Industrial Revolution for these countries is simply negative; the way of life can best be described as non- or pre-industrial, with all that that implies for the people living there, from the Mexican *tlacololeros* scratching their mountainside cornfields to "the numbed and starved savages who just manage to keep alive among the frosts and snows of Tierra del Fuego." [8] But more and more even the

[6] Frank Tannenbaum, *Peace by Revolution* (New York, 1933) p. 229.

[7] *Cf.* The importance of such a book as Francisco Madero's *The Presidential Succession*, published in 1908, two years before the Mexican Revolution forced the abdication of Porfirio Diaz—who escaped to Europe through the kindness of the British ambassador, by the way.

[8] The life of the peasant has nowhere been rendered better than in two Mexican novels: Gregorio Lopez y Fuentes, *El Indio* and Mariano Azuela, *Los de Abajo*. A comprehensive socio-economic study of the village of Tepoztlan, Morelos has been made by Oscar Lewis, of which "Social and Economic Changes in a Mexican Village" (*America Indigena*, Vol. 4, No. 4, Oct., 1944) and "Wealth Differences in a Mexican Village" (*Scientific Monthly*, Vol. LXV, No. 2, August, 1947) have been published. Particularly interesting for their account of pre-industrialism's effect on the individual are two of Professor Lewis' essays, "Husbands and Wives in a Mexican Village: A Study of Role Conflict" and "Family Case Studies: A Technique for the Study of Culture and Personality," so far unpublished. The description of the Tierra de Fuegans is from A. J. Toynbee, *A Study of History*, 1-vol. ed. (New York, 1947) p. 148.

most isolated villages tend to be drawn into relations with the "outside" or Western-industrial world, and already the economies of Latin America are interlocked with those of Europe and the United States in a hundred different ways.

What is the meaning of this interlocking—or, in our time-table terms, what events have followed and may be expected to follow from it, in what order and according to what pattern? Obviously in many ways the Latin American countries have repeated the experience of other agricultural regions, including that of the United States in the nineteenth century. Both, for instance, as they struggle to industrialize seem to learn more from Friedrich List than from List's *bete noire* Adam Smith, and in spite of protests from free trade economists strive to ring themselves round with tariff barriers. And the Latin American countries like their predecessors know the trick of acquiring the Industrial Revolution cheap by financing capital import through borrowing and then defaulting on or even repudiating the bonds.

Needless to say both Latin American protective policies and national debts are closely connected with the as yet only partially rationalized institutional situation in the Western industrial-capitalist countries. It is because these nations have a distributive system derived from feudal inequality, and not yet overhauled in the light of social science, that they face perennial "over-production" and "over-saving" for which they must seek outlets overseas. The same limited markets due to feudally-derived "under-consumption" have forced the Latin American countries to interfere with free trade, since a world scarcity of markets for the output of the Industrial Revolution means cutthroat competition for countries trying to add to that output.[9]

[9] Yet the result, on balance, seems to be that new countries always get industrialized, whether due to a need on the part of older countries for capital export markets greater than their fear of the competition this will inevitably involve as their exports "boomerang," or to some other reason. The history of the transfer of the implements of the Industrial Revolution from one country to another seems to belie the notion that capitalists are self-interested: indeed, they must be altruists, since none of the periodic spells of defaulting have ever interrupted for long the process of international lending!

Many other patterns typical of countries becoming industrialized in a world already partially industrialized will occur to the reader, but for the sake of brevity the remainder of this paper will focus on the meaning for Latin America of the two cycles linked to the Industrial Revolution which have already been mentioned: the business and the war cycle. "The never-lifted depression which hung like a fog over Britain between the two World Wars" [10] hung over much of Latin America too; it is a commonplace that countries which enter into relations with the capitalist nations fall heir to artificial ills unknown in *Naturwirtschaft*. Nevertheless these terrible periods of depression, when an awful lot of the coffee in Brazil is dumped into the ocean in desperate attempts to deal with "over-production," appear in perspective only as interruptions to the main event of industrialization in which povery and ignorance are slowly being wiped out below the Rio Grande.

The importance of these interruptions depends on when they occur, with what other events they coincide. We have already seen that depression may lead to totalitarian regimes in countries to whom the Industrial Revolution has not brought sufficient experience in the solution of problems by analysis and experimentation. In addition depression strengthens the hands of dictators already established, for it paralyzes their opposition. For both these reasons depression may coincide with local or world-wide war.

War does not interrupt the process of industrialization in Latin America; on the contrary it increases its pace. The same is true of the Cold War. But we should never forget, as students or citizens, that a country catapulted into the ranks of the economically powerful (and thus militarily powerful) nations teeters for some time afterward between peaceful progress in the ways of science and democracy which are the eventual concomitants of industry, and relapse into a barbarism made more terrible because of the new weapons it has acquired. Wherefore in politics the extreme importance of avoiding a depression at the present time with Soviet Russia so powerful and yet so backward, and wherefore, for Latin American economists, the duty

[10] *The Economist*, July 31, 1948, p. 171.

of taking into account the relation between depression, totalitarianism, and war in their theories and extrapolations of Latin American events.

The danger, incidentally, of a depression-created totalitarianism following a war or armament boom in Latin America is not lessened by the fact that the countries there have historically been allies of the United States. After all, Stalin was an ally! What future menaces to the peace of the world are now unknowingly and unavoidably being built up as exigencies of the Cold War? Perón is, for the moment, this moment of the Industrial Revolution, a quaint figure, deplorable but of no real importance to people outside Argentina and, perhaps, Uruguay. Hitler and Stalin were also quaint figures until conditions especially of the institutional derivatives of the Industrial Revolution transformed their quaintness into horror.

Emphasis here is on theory, however, the theory of what is happening and will happen in the Latin American economy, rather than on the moral corollaries of the time-table in which this theory eventuates. We can now sum up: the course of events in Latin America will be determined by the course of the Industrial Revolution around the world, especially insofar as this revolution puts high-level technology into the hands of societies which do not have time to learn to use it, and thus embark Latin America with the rest of the world on the stormy seas of depression, totalitarianism and war. The time-table now indicates that Latin America like the rest of the world has, along with the Cold War, a breathing-spell, an interim in which institutions older than our present global technology may be adjusted to its requirements.

* * *

Although it may have seemed at times that this paper attempted solutions outside its scope and intention, it should be obvious here at the end that nothing more than the need for a Latin American economic time-table has been demonstrated. Certainly no timetable itself has been set up, or laid down. Yet attention has been called to factors which, in the view of the author, cannot be ignored when that task is undertaken by the method of successive approximations ever more

definite but never definitive, as Latin American economics traverses the road from empirical studies to theoretical science.

More questions have been raised than answered; generalizations have been made whose value if any is heuristic only. This paper will have served its purpose if workers in the field of Latin-American economics are stimulated to write their special essays with an eye to integrating them, paragraph-by-paragraph, with some larger scheme of world developments, whether or not it is his own. For differences in theoretical frameworks are almost automatically self-adjusting and self-correcting, while from the morass of privately-oriented data-choked monographs there is no escape.

This point has been made so clearly and cogently by a writer in a field akin to Latin American economics not only in its subject-matter but in its tendency to lose itself in a mass of unrelated facts that he must be quoted here as the conclusion of this article:

> "Fact-collecting of itself is insufficient scientific procedure; facts exist only as they are related to theories, and theories are not destroyed by facts—they are replaced by new theories which better explain the facts. Therefore, criticisms of this paper which concern facts alone and which fail to offer better formulations are of no interest." [11]

[11] Julian Steward, "Cultural Casuality and Law: A Trial Formulation of the development of Early Civilizations", *American Anthropologist*, Vol. 51, No. 1 (Jan.-March 1949) p. 25.

Agricultural Systems and Standards of Living

By T. Lynn Smith *

One who travels throughout Europe and America, even in a cursory manner, is sure to be impressed with the fact that the standards and levels of living vary greatly from one part to another. If he is at all discriminating he will soon generalize correctly that the levels and the standards of living in northern Europe are much higher than those in the Mediterranean countries and that the plane of living in the United States and Canada is much above that prevailing in the countries south of the Rio Grande. Within the United States he will be forced to the conclusion that the average level of living is higher north of the Ohio than south of it; and in a country such as Brazil he will see undeniable proof that people living in the southern states of Rio Grande do Sul, Santa Catarina, Paraná, and São Paulo have far higher standards and levels of living than those in the more northerly sections of that great country.

In explaining the differences the zoological factors involved in racial concepts have enjoyed great popularity in the past. Nowadays the fact that the same type of differentials prevailed before the onslaught of the industrial revolution is likely to be overlooked and the inequalities attributed to variations in the extent to which the several great world regions are urbanized and industrialized. For me neither the racial factors nor industrialization is a sufficient answer. The purpose of this paper

* Mr. Smith is Professor of Sociology at the University of Florida.

is to examine some of the ways in which certain cultural factors are related to the observed differences.

A few years ago I explored this subject briefly in an address before the Instituto Brasileiro de Geografia.[1] In my discussion I indicated that a study of the systems of agriculture was one of the best ways of getting to the heart of the whole questions of standards and levels of living, and especially pertinent to any activities that might be undertaken to effect improvements in them. Since that time I have become even more fully convinced that the development, evolution, and diffusion of man's systems of agriculture constitutes one of the most interesting and important chapters in human progress.

FACTORS AFFECTING THE LEVEL OF LIVING

As I have indicated in another place,[2] the analysis of the level of living among any people resolves itself into a consideration of three factors: (1) the quantity and quality of the natural resources available for exploitation by man; (2) the output per worker; and (3) the manner of distributing the results of man's efforts among those who share in the productive process.

Natural resources in and of themselves are of no import until man's cultural heritage has reached a stage which enables them to be utilized. Iron resources, for example, were of no consequence to the Indians whom the Portuguese, Spaniards, French, Dutch, and English encountered along the shores of the New World because their cultural heritage did not include a knowledge of iron and how to get it, although their need for such a material was great and they eagerly borrowed it from the white man for use as arrow points and heads for their spears. In any case, most countries contain vast amounts of natural resources which in effect become available for use only as man's cultural heritage accumulates.

The output per worker is a more serious matter for those interested in the levels and standards of living in any country.

[1] T. Lynn Smith, 'Sistemas Agrícolas," *Revista Brasileira de Geografia*, Ano IX, No. 2 (Abril-Junho), 1947, pp. 159-184.

[2] *Brazil: People and Institutions*, Baton Rouge: Louisiana State University Press, 1946, p. 345.

It is precisely here that a change in the system of agriculture has most to offer in improving living conditions among mankind. In countries such as Argentina, Brazil, the United States, and Soviet Russia, where the pressure of population upon resources is very much less than it is in such countries as India or China, or even in most of Europe, the productivity per worker is largely determined by the extent to which labor is expended in the productive process. If labor is used lavishly, which is to say combined with relatively small inputs of capital and management, the output per man is far less than where each human being makes considerable use of tools, machinery, and power in the work which he performs.

If, as has been all too true in the southern part of the United States, hand implements have a tendency to be crude, gross, and ill-adapted to the functions to be performed and if the average farm worker uses relatively little horsepower and equipment, production per man and levels of living can hardly be expected to rival those in other parts of the nation where hand tools are more highly perfected and especially where generous inputs of power and farm machinery are combined with the labor of the average farmer.[3] If, as is the case in huge expanses

[3] The necessity for detailed and comprehensive study of this portion of the South's cultural heritage is suggested by observations such as the following made in 1853 by Frederick Law Olmstead, one of the keenest students ever to write about the region:

> But, here, I am shown tools that no man in his senses, with us, would allow a laborer, to whom he was paying wages, to be encumbered with; and the excessive weight and clumsiness of which, I would judge, would make work at least ten per cent greater than those ordinarily used with us. And I am assured that, in the careless and clumsy way they must be used by the slaves, anything lighter or less rude could not be furnished them with good economy, and that such tools as we constantly give our laborers, and find our profit in giving them, would not last out a day in a Virginia cornfield—much lighter and more free from stones though it be than ours. *A Journey in the Seaboard Slave States, With Remarks on Their Economy*, New York: Dix & Edwards, 1856, pp. 46-47.

From the Old Dominion Olmsted continued on down the Atlantic Coast to South Carolina where in the neighborhood of Charleston he recorded:

> I saw women working again, in large gangs, with men. In one case they were distributing manure—ditch scrapings it appeared to be—

of South America, or Africa, or the Western Pacific, man's only aid in his struggle with nature is the axe and fire, the output per worker may be so small as to permit only a very low level of living. My thesis is that where a system of agriculture prevails in which each worker makes abundant use, not only of land, but also of efficient tools, equipment, and power—if capital is not combined sparingly with labor—there results a much greater output per worker and, given anything like an equitable distribution, the level of living tends to be high.

The role of management is also of fundamental importance. If each agriculturist is a thinking, deciding, acting agent, himself performing the managerial functions of the agricultural enterprise (as is the case on the typical midwestern farm in the United States and in northwestern Europe), the managerial factor is not relegated to the secondary position it occupies in the operation of many large estates, the Southern plantation, the Spanish American *hacienda*, the Brazilian *fazenda*, or in short on latifundia of all types. Where the man who performs the manual labor also receives a return for the performance

> and the mode of operation was this: the manure had been already carted into heaps upon the ground; a number of the women were carrying it from the heap in baskets, on their heads, and one in her apron, and spreading it with their hands between the ridges on which the cotton grew last year; the rest followed with great, long-handled, heavy, clumsy hoes, and pulled down the ridges over the manure, and so made new ridges for the next planting. I asked a young planter who continued with me a good part of the day, why they did not use plows. He said this was rather rough land, and a plow wouldn't work it in very well. It was light soil, and smooth enough for a parade ground. The fact is, in certain parts of South Carolina, a plow is yet an almost unknown instrument of tillage. *Ibid*, p. 397.

It was also near this center of trade and culture that he conversed with a farmer who described:

> . . . as a novelty, a plow, with "a sort of a wing, like, on one side," that pushed off, and turned over a slice of the ground; from which it appeared that he had, until recently, never seen a mould-board; the common plows of this country being constructed on the same principles as those of the Chinese, and only rooting the ground like a hog or a mole—not cleaving and turning. He had never heard of working a plow with more than one horse. *Ibid*, p. 402.

of managerial duties, much has been done to insure a relatively high average level of living. On the other hand, in all of the types of large-scale agriculture there is a tendency for managerial activities to be husbanded, while labor is used lavishly. In those countries in which the absence of a general property tax permits land to become an asylum for capital such *latifundismo* reaches its maximum.[4] This poor combination of the economic factors, along with the failure of the mass of the workers to receive any return for managerial activities, dictates a comparatively low level of living.

THE EVOLUTION OF AGRICULTURAL SYSTEMS

Although this important evolutionary step has never received the attention it deserves, it would seem evident that the first farming was only a slight transition from the collecting stage which preceded it. Man, or his woman, became an agriculturist by foregoing the pleasures of immediate consumption, conserving part of the seeds from one crop season to another—and in all probability the next season followed immediately—and depositing them in a place where they could sprout, take root and grow. The soft, mellow loam deposits left on its banks by a receding stream probably were among the first places chosen for planting. At least, very early various primitive peoples probably learned that by merely saving seeds and pressing them into such spongy surfaces with the foot they could greatly multiply the gifts of nature. In any case, such a system of farming seems to be the simplest possible, since no tools whatsoever are needed; it is still widely used, especially throughout the great Amazon Basin in South America; and certainly it is the one in which man leans upon nature to the fullest extent.

[4] See, for example, T. Lynn Smith, "The Cultural Setting of Agricultural Extension Work in Colombia," *Rural Sociology*, 10 (1945), pp. 235-246; T. Lynn Smith, "Notes on the Population and Rural Social Organization in El Salvador," *Rural Sociology*, 10 (1945), pp. 359-379; and T. Lynn Smith, Justo Diaz Rodriguez, and Luis Roberto Garcia, *Tabio: A Study in Rural Social Organization*, Washington: Office of Foreign Agricultural Relations, 1945, pp. 44-45.

Soft, pliable portions of the earth's surface also are left where a fire has had plentiful fuel. In addition, such a burning destroys weeds and grasses that might interfere with the growth of domesticated plants. Hence, it is merely a step from the point where a man depends upon nature's rivers to prepare the soil for the seeds to where fire may be used for the same purpose. A large share of the earth's surface is occupied by peoples who have not passed beyond this stage—one of the most destructive possible, for in it a section of virgin forest or of second growth must be destroyed in order to make each year's crop.[5]

With his digging stick made into a hoe, by reinforcing it with a point or blade of iron, and an elementary knowledge of fertilization, man is in the stage of permanent agriculture. He no longer need destroy a forest in order to grow a handful of corn, a few beans, a peck of rice, some yams, or a little manioc. His arm has been greatly strengthened for its struggle with nature. Beyond this condition, significant advances must come through the employment of draft animals harnessed to agricultural implements for the preparation of the soil, planting, cultivation, and harvest. Properly-trained and well-fed horses and mules, the collar which permits a horse or a mule to throw his weight against a load without cutting off its breath, harnesses that fit, correctly-balanced hitching apparatus, the plow, the harrow, the cultivator, the drill, the mowing machine, and other horse-drawn harvesting equipment are the indispensable elements in the most advanced systems of farming. Under the exceptional circumstances which now prevail in large parts of the North American continent, the tractor may be preferable to the draft animals, but in most countries the culture complex which I am designating as the system of agriculture still lacks thousands of the traits which are essential before the tractor can become an integral part of the system in common use.

[5] In Smith, *Brazil*, Chapter III, is given a rather detailed description of this method of wresting a living from the soil. It is the sole reliance of millions of people in Brazil, Venezuela, Colombia, Peru, Bolivia, and other parts of Latin America.

The means used for the transportation of burdens are other of the more important features in the cultural complex which man uses in order to wrest a living from the soil. In the most primitive systems of agriculture, man, or his woman, shoulders the crop in the field and himself serves as the beast of burden to transport it to the storehouse. A considerable advance has been made when the back of a domestic animal is utilized for conveying the crop from where it is grown to the house of the agriculturist. Due to the persistence of old cultural practices, the bulk of the world's agriculturists still have not passed beyond these two elementary stages. When this animal is hitched to a two-wheeled cart and used to move loads from one part of the farm to another, from the field to the house, and from the granary to the market, the evolutionary process has surged forward an immense distance. Ultimately, a man's efforts may be combined with those of two horses or mules properly hitched to a well-made, four-wheeled vehicle, and then transportation on the farm is nearing the acme of perfection. In some seasons and for some crops, the motor truck may be used economically for moving part of the produce from the land on which it is grown to the storehouse on the farm, as well as in its more important role in the transportation of produce from the farm to the market. Along with the instruments used in preparing the soil, controlling the weeds, and taking the harvest, the methods of transportation employed are infallible indexes of the stage of agricultural progress that has been attained by a society.

WEAKNESS OF AGRICULTURAL SYSTEMS IN SOUTH EUROPE

From what I have been able to learn by reading and by some travel on the Continent, it seems fair to assert that the agricultural systems of southern Europe lack some of the elements that contributed greatly to social and economic progress in northern Europe, the United States, and Canada. (France belongs with northern Europe in this discussion.) I realize that most scholars are inclined to attribute the prevailing differences in levels of living between northern Europe and south-

ern Europe, Anglo-Saxon America and Latin America, mostly to racial or to climatic factors; but to me such an explanation seems untenable. A more careful study will probably reveal that the most important causes are cultural, and that the principal ones are deeply imbedded in that portion of the cultural heritage which I am calling systems of agriculture. Personally, I desire to call attention to three particular trait complexes, all developed in and widely diffused throughout northern European countries and the colonial areas occupied by them, and all almost entirely lacking in southern Europe, particularly Spain and Portugal, and the areas colonized by their peoples. These all-important trait complexes are: (1) the simple iron or steel turning plow; (2) the four-wheeled farm wagon; and (3) the horse collar and the other associated culture traits connected with the hitching of draft animals to farm machinery and vehicles, so as to employ animal power efficiently in the cultivation of the soil, and assisted by the correct combination of wheels, in the transportation of farm burdens. Between the three, there seems to be a causal relationship.

Well worth meditation is the question of what might have happened in Spain and Portugal, and especially to the south of the Rio Grande in the New World, if these countries had developed or borrowed the metal turning plow instead of conserving its wooden counterpart in practically the same form as it was used in the time of the Pharoahs; if they had substituted the four-wheeled farm wagon for the slow, clumsy, ill-balanced, and inefficient oxcart; and above all, if they had invented or borrowed a collar for horses and mules which would have permitted their efficient use of draft animals, instead of relying upon the ox.

But none of these things happened in southern Europe. Even yet South European countries lack the small, light-draft, steel plow, the farm wagon, and, for the most part, horses and mules employed as draft animals. While all three of these funda-

[6] We should not forget that it was Thomas Jefferson who worked out the mathematics of the turning plow, and other North Americans who developed a light plow of steel that would scour. It is hard for persons today to realize that the development of an efficient turning plow dates back only about 100 years.

mental cultural elements were being developed and diffused throughout northern Europe and North America,[6] Spain, Portugal, and the colonies of both, continued to rely upon the wooden plow, the two-wheeled-cart or no vehicle at all, and the use of the inefficient ox. From experience, I know that this statement, and particularly that about the ox, may give rise to a stream of explanations as to why that beast serves the needs of the farmers who continue to use him. In anticipation of these, permit me to say that just one hundred years ago a fierce debate was being waged in the farm journals and papers of the United States and England over the relative merits of the ox and the horse as draft animals.[7] The points made then in favor of the former have more than a little similarity to those that some of my Brazilian, Colombian, Central American, Mexican, and even North American friends have put forth in favor of the cloven-hoofed species. Nevertheless to me the evidence seems to indicate that if the horse had not won general favor in England and the United States, there seems good reason to believe that the systems of agriculture in those countries might also have remained chained culturally to the inefficient and labor-devouring processes handed down from antiquity.

I count it the greatest drawback under which most Mediterranean and Latin American countries have suffered that the agricultural systems they inherited and, for the most part, conserve lacked these three fundamental elements. But I also count as their greatest opportunity the possibility that they still have of incorporating them into their agriculural systems.

THE LARGE ESTATE AS A CULTURAL SIEVE

The student of cultural change has much to learn from a thorough study of the settlement of the great world area that is commonly called Latin America. Personally I have tried to isolate some of the factors responsible for the diffusion of certain cultural traits, and more particularly to find an explana-

[7] Cf. Percy Wells Bidwell and John I. Falconer, *History of Agriculture in the Northern United States*, 1620-1860, Washington: Carnegie Institution of Washington, 1925, pp. 112-113, 231.

tion as to why certain other highly important and even utilitarian cultural elements known in the Iberian Peninsula failed to diffuse to the New World. Undoubtedly the scarcity of women among the colonists had much to do with the selective processes that were at work. After all throughout most of Latin America for the great bulk of the population the maternal line leads directly back to an ancestor who was a full-blooded Indian, so that the innumerable traits which are transmitted from one generation to another largely through the institution of the family are weighted strongly in favor of the aboriginal elements. But I have also come to the conclusion that the way in which agricultural operations were organized had much to do with the failure of certain basic traits to get a foothold in Portuguese or Spanish America.

Consider first the case of Brazil. The large sugar estate, the *engenho*, served as a sieve in determining which portions of the European cultural heritage were to enter Portuguese America, which to be shut out. It was this particular institution which effectively barred the *sistemas agricolas* developed in Portugal and the remainder of Europe from entering Brazil. As has been demonstrated so well in the works of Oliveira Vianna, Gilberto Freyre, and other Brazilian scholars, the *engenho* was the sole consideration of the adventurers who were responsible for the occupation of the Brazilian littoral. From Sâo Vicente on the south to Sâo Luiz on the north, the impoverished noblemen, who became the land barons, built up large and widely separated little principalities in which the life blood was expressed from the thousands in order to provide a luxurious living for the few. In colonial Brazil there was no place for the modest little farm of the Portuguese peasant, nor for the system of agriculture he had received as a heritage from the long bitter struggles of his forefathers. Little did it matter what the Portuguese peasant had learned about methods of cultivation, systems of transportation, the preservation of food, a diversified diet, housing, and the daily routine of farm living and community life. His food crops—which might have provided a much more well-rounded diet for the population—the wooden plow, and, for the most part, even the

rudimentary knowledge of the wheel and draft animals were denied to Brazil by the monopolistic position of the *engenho.*

Obviously, if such cultural traits could not make their way from Portugal to Brazil, there was not the slightest possibility of a clandestine diffusion from other European countries into the hermetically sealed little Portuguese world which constituted The Land of the Holy Cross. The slave, hoe in hand, or staggering along with the burden on his back, alone had to serve as a substitute for the richer cultural heritage which constituted the agricultural system of Portugal—a cultural heritage acquired through the centuries of bitter trial and error which alone made possible the evolution of culture in the days before the scientific process of interrogating nature had been perfected. The fugitive slaves, Indians or Negroes, and any whites or mixed breeds who for one reason or another found it best to flee the *engenhos,* had to depend on the aboriginal processes of agriculture, felling and burning, for preparing the soil and the back of man or woman to transport the burdens.

In the Spanish colonies the corresponding large estate, called by a variety of names, performed about the same functions—it carefully sifted available European cultural traits, letting those that fit into the pattern make their way into the New World and shutting out most of the cultural elements connected with independent family farming.

THE PERPETUATION OF SOCIAL PATTERNS

Once established and strengthened by the authority of tradition, the cultural heritage, be it the portion included within the system of agriculture, or any other part of the man-made environment, is very difficult to change. If there is any principle of modern scientific sociology or cultural anthropology that may be said to be firmly established, it is that the dead weight of cultural lag maintains obsolete social forms and processes in use long after more advanced and more efficient traits and processes are readily available. Within rural society, by far the most conservative part of any society, the resistances to social and cultural change are particularly strong.

Latin America has always been and remains today almost exclusively rural. Not only is the percentage of its people who spend their lives entirely amid rural surroundings very large, but the degree of rurality, the lack of urban traits and influences in the rural communities, also is very high. Both quantitatively and qualitatively the countries of Mexico, Central America, Brazil, and all of Spanish South America except Argentina, Chile, and Uruguay, are among the most rural nations in the entire world. Therefore, it is not at all surprising that primitive systems of agriculture, the back of man or woman, at best assisted by the pack animal or the oxcart, still constitute the basic elements in farm production and farm transportation throughout most of their areas.

The sociologist and anthropologist knows that these deficiencies in Latin American rural culture could only have been changed or remedied in two ways: (1) by independent invention; or (2) by the process of borrowing. The first of these may be dismissed with a word. History may be searched in vain for an example of a people who of themselves, and without the fructifying influences of cultural contact and borrowing, have been able to develop a rich cultural heritage. The inevitable result of social and cultural isolation is stagnation.

Cultural borrowing, the process by which the most advanced peoples have come into possession of the lion's share of their man-made environment, would have been possible for the tremendous world made up by rural Brazil and the rural sections of Spanish America, only by the perfection of a highly developed system of universal education, or by the importation of a continuous stream of immigrants from the most progressive agricultural countries. It is well known that the first of these has not been accomplished—the mass of rural population in this part of the world still either do not enter school, or, if they are privileged to attend at all, it is for such a short time as to be practically ineffective. Large levies of immigrants have been admitted only in Argentina and Brazil, and they have brought with them many of the attitudes towards manual labor, agricultural skills, and farm techniques that these countries so badly need. For example, the immigrants have

almost completely changed Argentina's agricultural system, making it by far the most modern in Latin America. Much also has been accomplished in southern Brazil. The Germans, Poles, and Italians who are responsible for bringing to Brazil the plow, the four-wheeled wagon, the knowledge of the care and feeding of draft animals and how to harness them to farm implements, along with thousands of the other cultural traits so essential to independent, self-sufficient farm living, now constitute a rich reservoir of human and cultural resources of tremendous importance for the future development of the country. Their Brazilian descendants are particularly important. Until today their activities have been confined largely to the southern portions of the country—exactly the regions where the wasteful processes of the felling and burning are giving way to the more rational techniques based upon European models. Where their influence has not been felt, the old routines continue to hold almost undisputed sway. This means that the plow, the four-wheeled wagon, the use of horses and mules as draft animals—not to mention other labor-saving devices such as the mowing machine, cultivators, harrows, etc.—still are practically unknown north of Sâo Paulo.

CONCLUSION

In conclusion it is well to summarize briefly a few of the main points attempted in this discussion.

1. Standards and levels of living are intimately related to the systems of agriculture used in wresting a living from the soil. The extent to which labor is either lavished or husbanded in the productive process is particular important.

2. The systems of agriculture in general use throughout the world are extremely wasteful of human energy. A large share of the earth's population lacks farming implements any more efficient than those used in the time of the Pharoahs. Large groups have no tools at all except the axe. The system of agriculture we in this country take for granted, one in which the individual worker makes extensive use of efficient equipment such as the turning plow, the four-wheeled farm wagon,

the tractor, or even the motor truck, the combination of the factors of production in which he makes abundant use of horse and mechanical power, is a remarkable achievement.

3. Explanation of the fact that levels and standards of living are higher in North Europe than in South Europe, in the United States and Canada than in Latin America, in terms of zoological or climatic factors seems of dubious validity. It is best to seek cultural explanations. Among the many cultural factors that probably played a part, attention was directed to the discovery and diffusion in northern European countries and their colonies in the New World of the simple steel turning plow, the horse collar, and the four-wheeled farm wagon.

4. In the settlement of the New World, the monoculture of the patriarchal, slavocratic, large estates characteristic of both Portuguese and Spanish America shut out from Brazil and many of the Spanish colonies much of the cultural heritage accumulated by the peasants of southern Europe. As a result large sections of Latin America have agricultural systems which are not even as efficient as the backward methods of getting produce from the land which are used in the Iberian Peninsula.

Trade Between Mexico and the Transpacific World, 1870-1900

By Clinton Harvey Gardiner *

The prospect of profitable trade, more than anything else, prompted the renewed Mexican interest in the Pacific world during the nineteenth century. The logic of such motivation lay in the fact that trade had been the basic factor relating Mexico to the Pacific during centuries of the colonial era. The cargoes of the Manila galleons had helped to meet the colonial demand for luxury goods. Though it fluctuated greatly over the 250 years it existed, the galleon trade singlehandedly established a tradition of profitable intercourse with the Far East. Given the multiple economic miseries to which Mexico was subject in early independence, and that nation's inordinate commercial dependence upon a handful of western powers, the reawakened interest in the Orient—associated as that area was with a glamorous and profitable past—became one of the great economic hopes of nineteenth-century Mexico.

For half a century after independence Mexican trade with the transpacific world was utterly insignificant yet interest was steadily maintained through oft-repeated words and constantly reiterated projects. Tehuantepec, which had drawn Spanish attention during colonial days, received early considera-

* Mr. Gardiner is Assistant Professor of History at Washington University.

tion from independent Mexico, always with heavy emphasis on the role it could and should play in world trade. Even as he granted the first concession for the construction of interoceanic communications across that isthmus, Santa Anna, in March 1842, maintained that no other measure offered greater benefit to Mexico because this would make it a center of world commerce and navigation.[1] Nor was Santa Anna the only Mexican chief executive to enthuse over the role of Tehuantepec in the expansion of Mexican commerce. Virtually every president who followed him was likewise optimistic. Also, in part, the rosy-hued outlook stemmed from such engineers as J. J. Williams whose writings included detailed calculations of the volume of American, French, and British shipping that could be expected to use any canal that might be constructed across Tehuantepec.[2] Cabinet minister Lucas Alamán, reporting on the deteriorated state of Mexican roads shortly after the winning of independence, urged that preferential attention be given the road between Mexico City and Acapulco because of its relationship to the projected trade program with Asia.[3] In like manner the numerous projected Mexican transcontinental railroad lines, beginning with that of 1849, were distinctly related to the hope of an expanding trade in the Pacific area. Dreams of roads, canals, and railroads materialized very slowly and transpacific ties through shipping and trade failed to crystallize. In the final analysis, Mexican Pacific shipping and trade were at the mercy of a slowly developing land transport system and without that necessary link between the coast and the more populous Mexican interior it was impossible either to export Mexican produce or to import Far Eastern goods.

[1] Manuel Dublán, José María Lozano, Adolfo Dublán, and A. A. Esteva (comps.) *Legislación mexicana ó Colección completa de las disposiciones legislativas expedidas desde la independencia de la República* (50 vols., México, 1876-1912), I, 738-739.

[2] J. J. Williams, "Informe del Sr. D. J. J. Williams, ingeniero en jefe del ferrocarril de Tehuantepec, sobre el proyecto de un canal de navegación interior al través del Istmo de Tehuantepec," *Boletín de là Sociedad de Geografía y Estadística de la República Mexicana*, Epoca 2, II (1870), 601-611.

[3] México—Secretaría de Relaciones Exteriores, *Memoria . . . de* 1823 (México, n. d.), 43, 45-46.

Until the late 1880's and early 'nineties Mexican trade with the transpacific nations was so slight as scarcely to command the attention of even the statistically minded individual. For example, during the fiscal year 1872-1873, with total imports approximating 20,000,000 pesos, Mexico imported goods to the value of 825.25 pesos out of the Pacific area. That trade, with China, represented a combination of such items as flax, hemp, silks, straw fans, and perfumes.[4] No exports went from Mexico to the Far East during that period and China was the only oriental state supplying Mexico, ranking last among the eleven powers from which Mexico imported goods.[5] During the early 1870's the four powers, England, the United States, France, and Germany, accounted for more than 85 per cent of Mexico's trade, both import and export.[6] Official records fail to indicate any Mexican products exported to the Far East during the entire decade of the 1880's.[7]

The importation of transpacific products in sizable quantities is in evidence before the opening of the last decade of the century, however. Three of the thirty-eight states from which Mexico imported in 1888-1889 were within the Pacific world. In order of importance they were China, Australia, and Japan. During the fiscal year 1888-1889, while Mexican imports totalled 40,024,894.32 pesos, the three Pacific states contributed goods to the value of 39,931.10 pesos, less than one-tenth of 1 per cent of the Mexican import trade. That China was the leading Far Eastern supplier of goods to Mexico is evident in the fact

[4] México—Secretaría de Hacienda, *Resúmen general de la balanza del comercio exterior de la república correspondiente al año económico* 1872-1873 (México, 1875), ii, iii, 32, 46, 127, 129, 136.

[5] Antonio García Cubas, 'Comercio exterior de México," *Boletín de la Sociedad de Geografía y Estadística de la República Mexicana*, Epoca 3, II (1874-75), 436-448.

[6] México—Secretaría de Hacienda, *Noticia de la importación y exportación de mercancías en los años fiscales de* 1872 *á* 1873, 1873 *á* 1874, *y* 1874 *á* 1875 (México, 1880), Pt. I, 3; Pt. II, 3; and Pt. III, 3.

[7] México—Secretaría de Hacienda, *Noticia de la exportación de mercancías en el año fiscal de* 1880 *á* 1881, 18; *ibid.* 1881 *á* 1882, 17; *ibid.* 1882 *á* 1883, 19; *ibid.* 1883 *á* 1884, 18; *ibid.* 1884 *á* 1885, 17; *ibid.* 1885 *ó* 1886, 49; *ibid.* 1886 *á* 1887, 50; *ibid.* 1887 *ó* 1888, 52; *ibid.* 1888 *á* 1889, 54; and *ibid.* 1889 *á* 1890, 53.

that the Celestial Empire accounted for 98 per cent of Mexico's Far Eastern imports in 1888-1889.

The trade pattern was similar in the fiscal year 1889-1890: no Mexican exports to the Far East; a meager amount of just slightly more than one-tenth of 1 per cent of the total imports came from the Far Eastern lands; and China continued as the leading Far Eastern supplier of Mexican wants.

MEXICAN IMPORTS [8]

Year	Total Far East	China	Australia	Japan	World Total
1888-89	39,931.10	39,351.10	485.00	95.00	40,024,894.38
1889-90	64,412.00	59,001.40	3,895.00	1,515.60	52,018,658.89

Several truths which persist to become trends in the next decade are in evidence as early as the close of the 1880's, namely: 1) total imports increased noticeably; 2) import percentages registered inconsequential change because of the general increase in imports; and 3) the second and third ranking powers were wearing down the margin of Chinese preeminence and were winning larger percentages of the Mexican import trade.

With the closing decade of the nineteenth century, the Mexican transpacific trade became two directional, as the following statistical picture indicates:[9]

	China		Australia		Japan	
Year	Imports	Exports	Imports	Exports	Imports	Exports
1892-93	91,091	99	6,325	0	2,068	0
1893-94	67,763	58	5,390	0	13,089	0
1894-95	44,928	545	38,331	0	9,018	5,850
1895-96	51,188	800	4,572	0	12,793	2,990
1896-97	51,357	5,396	24,833	0	23,673	1,660
1897-98	41,157	2,260	33,744	0	24,013	2,052
1898-99	98,216	0	31,723	0	50,946	0
1899-00	128,362	4,260	29,522	0	51,271	0

[8] México—Secretaría de Fomento, "Resúmen de las importaciones de México en el año fiscal de 1888-1889," *Informes y documentos relativos á*

An analysis of the ports through which the goods of these countries entered Mexico indicates that only a small percentage of the transpacific imports moved directly to Mexico across the Pacific Ocean. Sizable quantities of Chinese produce entered at Vera Cruz, Tampico, and Progreso. In the second half of the 1890's between 50 and 75 per cent of the Chinese imports entered Mexico annually through Gulf ports.[10] Two circumstances help to explain that unusual pattern: 1) Chinese lack of merchant shipping and consequent dependence upon British bottoms and 2) the lack of railroad transport between Pacific ports and the interior of Mexico. Meanwhile much Japanese produce moved across the Pacific to the United States and thence to Mexico via Laredo, Ciudad Juárez, and Nogales. Between 1896 and the turn of the century from 40 to 50 per cent of Mexico's imports from Japan annually entered via the United States.[11] Japanese use of the ports of Mexico's northern neighbor was a clear case of following the line of least resistance. Shipping lines were already well established between Japan and the United States, hence why take an economic chance by attempting to inaugurate competitive lines shipping directly between Japan and Mexico. Oddly, considering its association with Great Britain, it was Australia that persistently sent the largest percentage of its goods to the west coast ports of Mexico. Annually, in the interval 1896-1900, from 96 to 100 per cent of the Australian exports to Mexico entered the latter country through its Pacific ports.[12]

comercio interior y exterior . . . , No. 70 (April 1891), 60-61 and México—Secretaría de Fomento, *Importaciones* 1889 *á* 1890: *primer semestre—segundo semestre—año fiscal* (México, 1893), 242. The values stated in this and succeeding tables are in pesos.

[9] México—Secretaría de Hacienda, *Comercio exterior: año fiscal de* 1896-1897 (Mexico, 1901), 183, 231 and México—Secretaría de Hacienda, *Comercio exterior y navegación: año fiscal de* 1899-1900 (México, 1902), 195, 249.

[10] Hacienda, *Comercio exterior* . . . 1896-1897, 179-180; *ibid.* 1897-1898, 181-182; Hacienda, *Comercio exterior y navegación* . . . 1898-1899, 221-222; and *ibid.* 1899-900, 191-192.

[11] Hacienda, *Comercio exterior* . . . 1896-1897, 179-180; *ibid.* 1897-1898, 181-182; Hacienda, *Comercio exterior y navegación* . . . 1898-1899, 221-222; and *ibid.* 1899-900, 191-192.

In addition to the 'big three,' China, Australia, and Japan, the following made brief appearances in Mexican trade reports late in the nineteenth century: in 1896-1897 Hawaii, which for some time had exchanged consuls with Mexico, purchased a shipment of guano valued at 1,200 pesos; in 1898-1899 cargo valued at 612 pesos moved from Java to Mexico and in 1899-1900 not only was Java back again (9,813 pesos value) but Sumatra also appeared as a supplier of Mexico, to the extent of 2,187 pesos value. The closing year of the century also saw insignificant shipments moving to Mexico from the Philippines and Siam.[13]

For most of the last decade of the nineteenth century, the following table presents the relative role of the total Far Eastern trade in the total Mexican foreign trade, both import and export:[14]

MEXICAN TRADE—COMPARATIVE TOTALS

	Imports		Exports	
	Far East	World	Far East	World
Year	Total	Total	Total	Total
1892-93	99,484	43,413,131	99	87,509,207
1893-94	86,242	30,287,489	58	79,343,287
1894-95	92,277	34,000,440	6,395	90,854,953
1895-96	68,553	42,253,938	3,790	105,016,902
1896-97	99,863	42,204,095	7,056	111,346,494
1897-98	98,914	43,603,492	4,312	128,972,749
1898-99	181,497	50,869,194	0	138,478,137
1899-00	221,478	61,318,175	4,260	150,056,360

[12] Hacienda, *Comercio exterior* . . . 1896-1897, 179-180; *ibid.* 1897-1898, 181-182; Hacienda, *Comercio exterior y navegación* . . . 1898-1899, 221-222; and *ibid.* 1899-900, 191-192.

[13] Hacienda, *Comercio exterior* . . . 1896-1897, 207; and Hacienda, *Comercio exterior y navegación* . . . 1899-900, 195-196.

[14] México—Secretaría de Hacienda, *Estadística fiscal: importación: años fiscales de* 1893-94 *y* 1892-93 (2 vols., México, 1897), II, 1436; *ibid.* 1894-95 (2 vols., México, 1898), II, 1062; *ibid.* 1895-96 (2 vols. México, 1899), II, 998; Hacienda, *Comercio exterior* . . . 1896-1897, 172, 183, 217, 231; *ibid.* 1897-1898, 174, 221; Hacienda, *Comercio exterior y navegación* . . . 1898-1899, 198, 269; and *ibid.* 1899-900, 184, 195-196, 235, 249.

This record of Mexican transpacific trade, even when one recognizes that it was embryonic and gradually growing, was a dismal one. Never, with the single exception of the Hawaiian trade of 1896-1897, did Mexico have a favorable trade balance in the Pacific area during the 1890's. Such is particularly disturbing when one recalls that in its over-all foreign trade Mexico knew an unbroken sequence of favorable trade balances in that decade, with the ratio of sales to purchases generally between 2:1 and 3:1.

Never did the combined trade for the entire Pacific area—either import or export—approach 1 per cent of the annual trade. Let it be said, lest perspective be lost regarding this rather inconsequential movement of goods between Mexico and the Far East, that Mexico's transpacific trade frequently equalled or rivalled the volume of trade between Mexico and all the other Latin American states. In the fiscal years 1892-1893 and 1893-1894 Mexican imports from the Orient compared favorably with the totals from the entire continent of South America. In the former year, when Mexican imports from Japan only amounted to 2,068 pesos value, they nonetheless exceeded the total imported by Mexico from Argentina, Brazil, and Chile. Accounting for the niggardly roles played by both Latin America and the Far East in Mexican import trade was that nation's continuing dependence upon the United States, England, France, and Germany, which supplied more than 95 per cent of the Mexican imports year after year in the closing years of the nineteenth century.[15]

One problem that plagued Mexico's transpacific trade was the meagerness of Pacific merchant marines—in China and Japan as well as in Mexico. At the very close of the century the only Pacific shipping to enter Mexican ports consisted of Hawaiian vessels and virtually all of those vessels came as tramp shipping and not in direct service. Limitation upon the expansion of that merchant service is inherent when one notes that during the year 1899-1900 fifteen of the twenty Hawaiian

[15] Hacienda, *Estadística fiscal . . .* 1893-94 *y* 1892-93, II, 1507-1508 and *ibid.* 1895-1896, II, 999-1000.

vessels calling at Mexican Pacific ports left them in ballast.[16] Mexico just did not have goods for that traffic.

Despite the disappointing results represented in the previously stated figures for Mexico's late nineteenth-century transpacific trade, high hopes of profitable intercourse with that area not only prompted the Mexican diplomatic orientation toward the Far East but also characterized the earliest diplomatic steps. After his scientific mission to Japan in 1874-1875, Francisco Díaz Covarrubias returned to Mexico and enthusiastically backed the idea of the early establishment of diplomatic relations with Japan. His primary reasons were economic. In his writings the scientist even listed the Mexican and Japanese products that he believed would most easily and profitably move in that commerce between them. In conversation with Japanese Foreign Minister Terashima Munenori, Díaz promised that on his return to Mexico he would inform his government of the reciprocal advantages that would accrue from a treaty of friendship and commerce with Japan.[17]

Further proof of the trade motive in Mexican initiation of relations with Japan is seen in the fact that the consulate at Yokohama was established prior to the legation at Tokyo. Even before the first Mexican minister to Japan had presented his credentials to the emperor, he, in conversation with the Japanese Foreign Minister, began to explore trade possibilities.[18]

In like manner Mexico, with a consulate at Hongkong, had an economic window opening upon China long years before diplomatic relations were formally established between the governments.[19] At moments when the Chinese government was not inclined toward the idea of opening political relations with Mexico, that consulate in Hongkong helped to maintain Mexi-

[16] Hacienda, *Comercio exterior y navegación . . .* 1899-900, 277.

[17] Francisco Díaz Covarrubias, *Viaje de la Comisión astronómica mexicana al Japón para observar el tránsito del planeta Vénus por el disco dèl sol el 8 de Diciembrè de* 1874 (México, 1876), 129, 198, 140-143, 171.

[18] Díaz to Congress, September 16, 1890, in México, *Informes y manifiestos de los poderes ejecutivo y legislativo de* 1821 *á* 1904 (3 vols. México, 1905), II, 448 and Rascón to the Mexican Foreign Office, No. 5, Tokyo, November 12, 1891, in *Diario oficial*, December 18, 1891.

[19] *Ibid.*, September 28, 1891.

can enthusiasm. With no record of Mexican interest in Australian trade leading to the early establishment of consulates in that land, it may be assumed that the role of Australia in Mexico's transpacific trade was but an imperial projection of Britain's significant part in the total foreign trade of Mexico.

Special economic missions, long employed to help initiate international trade, also played a role in Mexican trade with the transpacific world. The Japanese mission of 1891, charged with studying Mexican commerce and industry, surely helped to pave the way for the expanding exportation of Japanese goods that developed in the closing years of the century.[20] Meanwhile a partial explanation of the Mexican inability to develop an expanding export trade in the direction of Japan may stem from the fact that Mexico never made any equivalent on-the-spot study of the Japanese economy, leaving such matters to normal consular channels. While the Japanese special economic missio nto Mexico followed the formal establishment of relations between the nations, China adopted the opposite procedure and sent a mission first and allowed its report to influence the ultimate imperial decision for or against formal ties with Mexico. The Chinese mission of 1894, like the Japanese project of 1891, studied Mexico at first-hand,[21] but no similar Mexican study of the Chinese scene transpired. Once again the more business-like approach to the matter of building up trade volume employed by the oriental power helps to explain the continuance of the unfavorable balance of Mexican trade with the Orient.

In the realm of consular services, once again the effort put forth by Far Eastern representatives exceeded that of the Mexicans. Japan early demonstrated a logical approach to the intelligent development of a long-range trade program for amost immediately following his appointment Consul General Toshiro Fujita left his post in Mexico City and undertook an extended tour of the interior areas of Mexico.[22] Again there

[20] Díaz to Congress, April 1, 1891, in Mexico, *Informes y manifiestos*, II, 459.

[21] Same to same, September 16, 1894, in *ibid.*, 552.

[22] Japanese Foreign Minister Mutsu to Rascón, November 29, 1892 and Rascón to the Mexican Foreign Office, December 8, 1892, in *Diario oficial*, January 17, 1893.

is no record that early Mexican consular officials took equivalent steps to inform themselves and their governments concerning Japanese and Chinese economic life.

The movement of nationals to foreign areas, whether as short-term residents dedicated to trade or as long-term settlers searching for a new life, can facilitate the expansion of a nation's foreign trade. As with goods, so it was with population too, for early years found more Orientals moving to Mexico than Mexicans going to the Far East. The Mexican census of 1895 disclosed a total of twenty Japanese in Mexico, a number that was to be augmented by an exclusively Japanese colony in Chiapas in 1897. The Chinese in Mexico at the time of that first Mexican general census numbered 987 and were to know considerable increase immediately after the turn of the century when one shipping line, in a two-year interval, moved some 4,157 Chinese to Mexico.[23] Meanwhile Mexican reports from the Far East were uniformly pessimistic. The Mexican consul in Japan reported in 1899 that there was not a single Mexican in all Japan, except the official staff which numbered three.[24] In similar fashion the Mexican official who reported the movement of Chinese to Mexico could only add that he could discern no activity on the part of Mexican merchants in Chinese markets.[25]

The Mexican who contributed most to expand Mexican-Japanese trade was Mauricio Wollheim, First Secretary of the initial legation staff in Tokyo. By early 1893 Wollheim had also assumed the duties of consul general. The half decade that immediately followed found him laying the ground-work

[23] México—Secretaría de Fomento, *Censo general de la República Mexicana verificado el 20 de Octubre de 1895: Resúmen* (México, 1899), 119, 124, 243, 248 and F. D. Barretto, "Hong-Kong: Informe del Viceconsul correspondiente al año de 1904," *Boletín oficial de la Secretaría de Relaciones Exteriores*, XX, No. 2 (June 15, 1905), 128.

[24] Rodríguez Parra to the Mexican Foreign Office—published as "Informe general del Japón," *Boletín oficial de la Secretaría de Relaciones Exteriores*, XIII (1901), 62.

[25] F. D. Barretto, *op. cit.*

for future commerce. Having studied the economic life of both countries, he constructed lists of those products which he felt would most naturally be a part of any such commerce.[26] He also wrote reports intended to debunk unwarranted optimism regarding the prospects of Mexican goods in Japanese markets.[27] A later Mexican consul in Japan was enthusiastic in his praise of his predecessor's efforts to promote Mexican trade with Japan.[28]

Especially since the modern transpacific economic reorientation of Mexico was a direct product of the earlier galleon traffic of colonial years, one cannot resist the temptation to compare and contrast the two periods. Almost instantly the volume and success of the colonial traffic had placed the transpacific trade on a firm foundation; no such development is apparent in the revived trade of the late nineteenth century. The colonial trade had been direct between the areas concerned; the new commerce was seldom so because of heavy dependence upon foreign bottoms and established shipping routes. Similarity is strong between the two, however, in regard to the ultimate Mexican payment for oriental goods. The colonial period saw Mexico ship bullion across the Pacific and the late nineteenth century saw that practice repeated. In fact even before oriental goods came to Mexico in republican years, Mexican pesos had come to have a preferred place in the Far Eastern trading centers as a medium of exchange. The role of the Mexican peso in the Far East had convinced some Mexicans that their products would have an easier time in Far Eastern markets because of the entering wedge that the peso constituted [29] but such wishful thinking did not materialize. In summary the late

[26] Wollheim to the Mexican Foreign Office, Yokohama, March 16, 1896—published as "Revista comercial," *Boletín oficial de la Secretaría de Relaciones Exteriores*, II, 20-21.

[27] Same to same, Yokohama, June 3, 1896—published as "Desventajas que presenta el mercado del Japón para los productos de ganadería de México," *Boletín de agricultura, minería é industrias*, VI, No. 1 (July, 1896), 21-24.

[28] "Informe del Japón," *Boletín oficial de la Secretaría de Relaciones Exteriores*, XIII (1901), 349.

[29] F. Díaz Covarrubias, *op. cit.*, 171.

nineteenth century was but the palest of carbon copies of the lush days of the Manila galleons for indeed the galleons of the early seventeenth century would have disdained the limited cargoes that represented the trade of the 1890's.

Mexican failure to make more of the trade prospects may be surprising since the Latin American state had brought considerable enthusiasm to the establishment of formal relations with the transpacific areas but the matter does admit of explanation. Prominent among the reasons for Mexico's inconsequential transpacific trade in early years are the following: 1) the magnified Mexican memory of the colonial galleon trade seemingly produced a pattern of inertia, it being believed that past success guaranteed present and future success; 2) the lack of a modern land transport system between Mexican Pacific ports and the populous Mexican interior, limiting both the importation and the exportation of goods; 3) the lack of native merchant shipping moving directly across the Pacific; 4) the absence of special missions charged with making detailed economic surveys of the transpacific nations for the guidance of Mexican businessmen; 5) the fact that early consular officials, few in number and handicapped linguistically, supplied Mexico with little information that would not have been available through non-consular channels; 6) the co-existence of colonial economies, at least temporarily, in both Mexico and the transpacific areas; and 7) the fact that the entire Mexican reorientation toward the Pacific world in the late nineteenth century was the product of but a handful of powerful political and intellectual leaders, a program which had little or no foundation in the basic political, economic, or cultural yearnings of the Mexican nation. Only with the remedying of one or more of these factors could Mexico, in the dawning twentieth century, hope for better trade relations with the transpacific world.

The Foot-and-Mouth Disease in Mexico[1]

By Wendell C. Gordon*

The foot-and-mouth disease (aftosa) appeared suddenly in Mexico in December 1946. The first report came from the state of Vera Cruz, and it has been thought that the disease was brought into the country by a shipment of Zebu or Brahman bulls from Brazil. But some Mexicans have said that the cause has been imputed to the Brazilian cattle by United States cattlemen in an effort to discredit Mexican efforts to improve the quality of the cattle in the country.

However, be that as it may, whether the import of those bulls was legal under a 1928 treaty between the United States and Mexico has been a much mooted point. Article IX of the treaty read: "The High Contracting Parties shall not issue permits for the import of ruminants or swine originating in any foreign countries or zones where highly infectious and rapidly spreading diseases such as foot-and-mouth disease and rinderpest appear frequently, until at least 60 days have elapsed without any outbreak of the disease in such countries or zones." Both the Mexican and United States governments had officially found that the foot-and-mouth disease was present in Brazil.

* Mr. Gordon is Associate Professor of Economics at the University of Texas.

[1] The author would like to thank Dr. John A. Hopkins, Agricultural attaché at the Embassy in Mexico City, and Mr. Sam Montague and Mr. Winstead, with the Information Section of the Anti-Aftosa Commission, for their very kind assistance in the obtaining of the factual information contained in this article.

The particular cattle in question (a second shipment of Zebus) were held in quarantine 139 days on an island off Vera Cruz before transfer to the mainland where they were inspected for the foot-and-mouth disease in September 1946 by veterinarians from both the Mexican and United States governments. No sign of the disease was found on 316 out of 327 cattle in the shipment. The other eleven bulls have not been accounted for at all, and the disease subsequently broke out among cattle on the fields where the Zebus had been pastured.

However, as argument against the theory that the disease was brought by the Zebus, two points may be mentioned. It has since been ascertained that the foot-and-mouth disease was probably already present in some herds in the neighborhood of Mexico City. And, as to the Zebus themselves, some of them are at present in the state of Texas, having been imported between September 1946 and the time the outbreak occurred in December; and the disease has not broken out in Texas.

The foot-and-mouth disease is an extremely contagious fever which attacks cloven-hoofed animals (cattle, sheep, pigs, goats, and deer) and not horses or mules. It is caused by a filter-passing virus. The disease may break out as soon as 24 hours after the original infection or may delay as long as two weeks. It is initially a fever followed by the outbreak of sores between the hoofs, in the mouth and on the tongue (hence the name foot-and-mouth), in the intestine, and on the udder and teats. The disease begins suddenly and spreads rapidly. The blisters enlarge and eventually break. During this time the sick animal has considerable trouble both feeding and walking. As a consequence it loses considerable weight. A steer may lose 150 pounds. Also, as an aftermath of the disease, a dairy cow is likely to give permanently 25% less milk, and a pregnant cow is likely to abort.

It is the loss of meat and milk which is the principal ill-effect of the disease because the death rate is not over 5%. At least this is true with regard to the type of the disease which has been present in Mexico. Thus the foot-and-mouth disease is a rather serious thing, but on the other hand there are far more serious diseases—for example, poliomyelitis, which is now in the process of spreading from the United States to Mexico.

Yet the Mexicans do not advocate fighting polio by the slaughter of all the children in the United States that have it. They merely forbid anyone to visit Mexico who has been exposed to it and do not enforce this prohibition very effectively.

These remarks are not designed to discount the importance of the foot-and-mouth disease, but they are designed to place the disease in its proper perspective—where it has scarcely been placed in discussion in the United States. It is possible for a prosperous cattle industry to exist with the disease continually present, as is the case in Argentina. And it is possible to protect an animal against the incidence of the disease with two or three vaccinations a year, which should not cost over 50c each.

The disease spreads in various ways. The virus may be left on the ground by infected animals and may then be carried from place to place on the soles of shoes or on automobile tires. Infected cattle as they move from place to place will leave the virus along the route. The disease may also be carried by animal products (such as chilled or frozen beef). The virus may live for considerable periods of time, perhaps three months, in meat (especially bone marrow) chilled to quite low temperatures. The California epidemics of 1924 and 1929 were probably caused as the result of feeding garbage containing meat from ships which had put in at San Francisco and Los Angeles to hogs on the farms of the individuals who collected the garbage off the docks.

In some ways the disease is quite easy to combat. Foot-and-mouth virus can be killed almost instantly by spraying or by direct contact with preparations containing caustic soda. Also hot sunshine is quite effective. It is calculated that an infected area, which has been disinfected by spraying, can be safely restocked with cattle three months later. Hogs, because of their tendency to root around, are generally turned into the pasture first to test whether the virus is still present.

Following its appearance in December 1946, the disease spread like wildfire across central Mexico. United States cattlemen and the United States government became immediately concerned about the situation. Texas cattlemen became especi-

ally insistent that drastic action be taken. The Mexican government expressed itself as willing, even glad, to receive United States aid in fighting the disease. It will be noted in what follows that the Mexican government has been willing to go a very long way in allowing foreigners to engage in active, governmental work within the boundaries of Mexico in the effort to stamp out the disease.

The Mexican-United States Commission for the Eradication of Foot-and-Mouth Disease was set up in the spring of 1947 and was ready for active work in May, almost six months after the original appearance of the disease. The Commission consisted of three officials from the Mexican Department of Agriculture and of three from the Bureau of Animal Industry of the United States Department of Agriculture. The Director was Lic. Oscar Flores of Mexico, and the Co-director was Dr. Maurice S. Shahan from the Bureau of Animal Industry.

The program called for the establishment of a quarantine line at the northern and southern limits of the contaminated area. Cattle from central Mexico were thus not to be allowed to go into northern Mexico. Also the United States border was closed to all Mexican cattle. But the principal means for fighting the disease was to be the slaughter of all infected cattle and of non-infected cattle which had been in close contact with infected cattle, that is of all cattle which had used the same pastures, water holes, and trails as the infected cattle. This procedure was to be followed by disinfection of the premises where the disease had occurred.

Slaughter may seem like drastic treatment for a disease of the severity of the foot-and-mouth disease. But slaughter has been the method used to fight the outbreaks of the disease which have occurred in the United States. However, except for a rather widespread outbreak during 1914-1916, which covered twenty-two states, these have all been rather small-scale, isolated outbreaks. And even the great 1914 epidemic necessitated the slaughter of only 172,000 animals and cost only $10,000,000. Against this background of experience with the slaughter technique it was decided to use this technique to deal with an epidemic which, to be conquered by the use of the technique, it was originally estimated would call for

the slaughter of possibly five hundred thousand cattle and which it was finally admitted might call for the slaughter of several million. For purposes of comparison, there are 13,500,000 cloven-hoofed animals in the quarantined area of Mexico; and there were about 8,750,000 cattle in Texas and about 81,000,000 in the United States in 1947.

The slaughter program was adopted on the insistence of the Untied States over the protest of Mexico. The Mexican government desired to use vaccination, quarantine, and disinfection; and it was concerned about the unfavorable effect that slaughter of large numbers of cattle, and especially of oxen, would have on the whole agricultural economy of the central plateau. It was also concerned about the difficulty of replacing the slaughtered cattle. Mexican officials argued that a sick cow in Mexico was far less danger to the United States than the foot-and-mouth virus on the wheels of a bus (*Tiempo*, 21 February 1947, p. 39). The United States apparently induced Mexico to agree to the slaughter program by threatening to close the frontier to all Mexican goods. Mexico's trade balance was unfavorable, and the country was losing foreign exchange reserves at a rapid rate. Subjected to these pressures the Mexican government agreed, with good grace, to try the slaughter program.

Certain aspects of this situation should be emphasized. At the time the United States stepped into the picture, Mexico had already given serious consideration to the desirability of using vaccine. Veterinarians had been brought to Mexico from abroad to aid in the production of vaccine and by the 20th of February 1947 vaccine was being produced in Mexico City (California, Senate Interim Committee on Livestock Diseases, *Report on Foot and Mouth Disease*, pp. 45, 371). Not only did the United States insist on slaughter instead of vaccination, it insisted on forcing the following remarkable agreement on Mexico on March 31, 1947: "It was agreed that (a) no vaccine will be manufactured, imported or used for any purpose, (b) that no experimentation with foot-and-mouth virus will be permitted, since such experiment would be incompatible with the objectives of the campaign except that (c) such studies or

experiments as are deemed desirable and are approved by the Director and Co-Director will be permitted, under closely controlled conditions." This ended for the time the manufacture of vaccine in Mexico. Whether Dr. M. S. Shahan or N. E. Dodd is responsible for this example of the use of the ostrich technique or whether they were compelled by others to force this agreement on Mexico is not clear. But it is clear that this example of insistence on using only the "tried and proven methods" combined with positive prohibition of research reflects little credit on the United States. And that is what was involved, because as of April 2, 1947, the Mexicans were compelled to agree that "all experimental treatments of animals affected with foot-and-mouth disease shall be prohibited." And the Bureau of Animal Industry stated in its release of May 17, 1947, that there had been "decision to exclude from the campaign the use of vaccines, alleged cures, or other treatments and to use only the time-tested methods of quarantine and slaughter that have fully demonstrated their effectiveness." This can hardly be called the scientific attitude, especially in view of what transpired.

The United States went a long way, perhaps much farther than the facts merited, to justify the slaughter program. For example, an announcement which the Commission had published in *Tiempo*, 18 April 1947, page III, said that an infected animal, even after cure, carried the virus forever and would be a continual menace. And in an article on page 33 in the June 1947 issue of the *Mexican-American Review*, which is the publication of the American Chamber of Commerce of Mexico, it was stated that: "Campaign leaders in the fight against the disease are encouraging the liquidation of healthy animals. Their reasoning is that if the herds are thinned out now, less animals will contract the disease in the future, saving the Foot and Mouth Commission millions of pesos and dollars. Every healthy animal slaughtered means one less potential spreader of the disease." [2] Following this line of thought to

[2] Mr. Jose Martinez Cerrillo, Editor of the *Mexican-American Review* has very kindly consented to the use of this quotation in the article. In fairness to the position of the *Mexican-American Review* with regard to

its logical conclusion one would be inclined to say that if all cattle were killed no cattle would have the foot-and-mouth disease and the problem would be solved.

In August 1947, under terrific pressure from the livestock and agricultural industries of the central plateau, the Mexican government tried to induce the United States to allow modification of the slaughter program and substitute emphasis on vaccination. But the request was refused on the ground that "the use of vaccines would hamper the slaughter method and tend to erase the already slim margin of hope for success." (California, Senate . . . , *op. cit.*, p. 422).

By November 1947, seven or eight months after the slaughter program was put into effect, 500,000 cattle and 160,000 small animals had been killed; and among the slain cattle were 100,000 oxen. It was obvious that the program was a failure. This was already three times as many animals as had been slaughtered in the worst outbreak of the disease in the United States in 1914. The economy of central Mexico could not stand the loss of livestock. Nor did it seem likely that the rural population would stand for much more slaughter. As will be seen later, the farmer was paid a fair enough price for his stock; but that was not the crux of the matter in an economy where the livestock are part of the family and where the oxen are essential for farm work. Much more destruction of livestock would literally have brought the agricultural economy of the region to a standstill.

So, in the fall of 1947 Oscar Flores went on a special mission to see Secretary of Agriculture Clinton Anderson and beg that the slaughter program be modified and emphasis be shifted to

the slaughter program I should like to quote the following statement of Mr. Martinez Cerrillo: "The paragraph which you wish to quote from the June, 1947, issue of Mexican-American Review could be quite misleading if its context were not taken into account. Naturally, I do not know how you wish to apply the paragraph. But it is obvious from the article that the program of all-out slaughter of cloven-hoofed animals—which was the initial policy of the campaign—was put into practice only in directly infected zones or in exposed regions. There are regions of Mexico where not a single animal has been killed due to foot-and-mouth disease."

vaccination. This was finally agreed to on November 26, 1947.

But it was the summer of 1948, half a year after the abandonment of the slaughter program before the new vaccination program could be put into full swing. This delay need not have occurred if the United States had allowed the production of vaccine in Mexico to continue and expand in the spring of 1947. Vaccination was a method which had been used to fight the disease in Europe (in Germany, just before the war, and by United States troops in the region of Rome during the war).

In addition to the program of vaccination, the program of inspection and quarantine has been continued. Actually slaughter also has been continued, but on a much reduced scale, and the program calls for slaughtering only cattle found in pockets where the disease breaks out in a virulent form. In such pockets this includes not only infected animals but also all other animals which have been exposed and which have not been vaccinated. The slaughtered animals are then destroyed and the premises disinfected.

The theory on which the campaign is now being conducted is that, if an area can be kept clear of the disease for a year, and if an animal can be kept free of the disease for a year, danger of infection is past. Then by applying this method to all central Mexico from San Luis Potosi to the Isthmus of Tehuantepec, it is hoped that the disease can be conquered.

Such was the program which was formulated following the failure of slaughter in November 1947. But because of lack of vaccine, it could not be put into effect at once. And the disease was spreading like wildfire in the late fall of 1947. At this point fate stepped in to help the campaign, and from Christmas 1947 on for several months the spread of the disease almost stopped of its own volition, an example of the strange and mysterious ways by which the foot-and-mouth disease both spreads and fails to spread. This delay gave the Commission time to reorganize and to effect the mass production of the vaccine.

A new Co-director, former Major General Harry H. Johnson from the Gulf Oil Company in Houston, was sent down, but not until June 1948. His forte was supposed to be organization and administration, and the problem was to organize the mass

production of vaccine. General Johnson is still the United States Co-director of the Commission. Dr. L. R. Noyes is Technical Co-director and the chief United States scientist with the group. Oscar Flores remains the Director, and Lauro Ortega is the Mexican Technical Co-director.

The preparation of the vaccine has been placed on a mass production basis. 10,000 clean cattle a month are brought down from northern Mexico to Mexico City. The cattle are injected with the virus of the disease and killed twenty-four hours later, as soon as the disease has developed. The tongues of the treated animals are harvested and used as the source of the vaccine. The meat of the animals, the bones having been removed, is disposed of on the market in Mexico City, going principally to hospitals and charitable institutions. The great threat of the disease does not lie in the fact that the meat of stricken animals is a menace to human beings. It lies, as was mentioned above, in the fact that the disease causes animals to lose weight and lose in ability to produce milk.

In June 1948 the production of vaccine was at the rate of 9,000 doses a month. By mid-year 1949 enough vaccine was being produced to innoculate between three and four million animals a month. At this rate in a year's time it is possible to vaccinate 13,500,000 animals three times each. Mexico is now the leading producer of foot-and-mouth vaccine in the world, and the cost of producing the serum had been brought down from a figure of $15 a dose in June 1948 to 78c a dose in June 1949. A goal of 50c a dose, which has been set, has not actually been reached although it has been approximated.

In terms of totals, by the 16th of July 1949, 13,000,000 animals had been vaccinated at least once, 6,000,000 had been vaccinated twice, and about 500,000 (along the borders of the quarantined zone where the work was begun) had been vaccinated three times. A total of 19,868,000 doses of vaccine had been administered.

In addition to vaccination, as was mentioned above, slaughter has not been entirely given up. And in the cases where the disease breaks out in a virulent form, the animals which have been in contact with the diseased animals are still

slaughtered—except for those which have been vaccinated and show no sign of the disease. Probably 900,000 animals were slaughtered between the beginning of the program and mid-year 1949. The rate at which slaughter is occurring has been reduced drastically however. In the first three months of 1949 only about 6,000 animals were slaughtered. And in the second three months virtually none were killed. The number of outbreaks of the disease in virulent form had dropped virtually to zero.

To date the average payment per head for slaughtered cattle has been $50, and the average payment for slaughtered small animals has been $5.65. This is probably a fair enough price. The average value of Mexican cattle coming into the United States before the disease broke out was also about $50. If the rural Mexican had a complaint against the slaughter program it was not with regard to the adequacy of the payments (although the payment was frequently of little use because drunk up in one wild splurge). The complaint was due to the fact that, regardless of price, the animals were necessary if the farm was to function at all. The Commission did make an effort to deal with this problem during the slaughter program and about 400 tractors and 30,000 mules were distributed in areas where oxen were being slaughtered. But these measures did not keep the slaughtering of oxen from being a rude blow.

Some $45,000,000 has been spent to pay for slaughtered animals. Perhaps that aspect of the expense is at an end. The program as it is being handled now, with emphasis on vaccination, is costing the United States government about $2,000,000 a month. The Mexican monetary contribution is not nearly so great. But the Mexican government provides offices; it makes the army available for quarantine work; and it also provides a substantial number of other personnel.

At present there is considerable reason for optimism to the effect that the campaign has been a success. There have been no recent active outbreaks of the disease. The vaccination program is proceeding apace, and the cycle of three vaccinations should be finished by January 1950. It may be that with the series of three vaccinations, combined with rigid inspec-

tions and disinfections, the disease may be conquered. This is by no means sure. It is literally not known whether a series of vaccinations will conquer the disease or whether it will become endemic. On the other hand, those who had argued for slaughter—without vaccination—did not know whether vaccination could be successful or not. And, whether due to vaccination or to the work of nature, the number of new cases *has* dropped almost to the vanishing point.

It is planned to re-evaluate the whole program at the beginning of 1950, when the cycle of vaccinations has been completed. At that time the disease will have had another chance to flare up at the end of the rainy season in the fall; and if it does not do so, it is yet more evidence that the disease is under control. Violent instances of the spread of the disease occurred at that time in both 1947 and 1948; and, of course, that was the time of the original outbreak in 1946. However, even if the situation seems quite favorable at the beginning of 1950, it will still be extremely desirable to continue extensive cattle inspections for another year. The disease may flare up again, as it did in Texas in 1924 after lying dormant for almost a year.

The anti-aftosa campaign in Mexico poses two problems of international interest. One concerns the personal relations between the Americans participating in the program and Mexicans—a sort of very delicate personnel problem. The other problem concerns the international trade implications of the presence of the disease in Mexico.

First, the Human Relations Problem: The Commission has about 5,000 people working for it (a figure which does not include the army personnel which does much of the quarantine work and which functions as escort for the field workers). About 1,250 of these are United States citizens, paid by the United States government. About 250 are Mexicans paid by the Mexican government. About 3,500 are on the so-called Joint-Commission payroll and are Mexicans. The Joint-Commission payroll is largely met by the United States.

Many jobs are duplicated—that is, the United States employee with a particular task has a Mexican counterpart. This is not

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At present there is considerable reason for optimism to the effect that the campaign has been a success. There have been no recent active outbreaks of the disease. The vaccination program is proceeding apace, and the cycle of three vaccinations should be finished by January 1950. It may be that with the series of three vaccinations, combined with rigid inspec-

tions and disinfections, the disease may be conquered. This is by no means sure. It is literally not known whether a series of vaccinations will conquer the disease or whether it will become endemic. On the other hand, those who had argued for slaughter—without vaccination—did not know whether vaccination could be successful or not. And, whether due to vaccination or to the work of nature, the number of new cases *has* dropped almost to the vanishing point.

It is planned to re-evaluate the whole program at the beginning of 1950, when the cycle of vaccinations has been completed. At that time the disease will have had another chance to flare up at the end of the rainy season in the fall; and if it does not do so, it is yet more evidence that the disease is under control. Violent instances of the spread of the disease occurred at that time in both 1947 and 1948; and, of course, that was the time of the original outbreak in 1946. However, even if the situation seems quite favorable at the beginning of 1950, it will still be extremely desirable to continue extensive cattle inspections for another year. The disease may flare up again, as it did in Texas in 1924 after lying dormant for almost a year.

The anti-aftosa campaign in Mexico poses two problems of international interest. One concerns the personal relations between the Americans participating in the program and Mexicans—a sort of very delicate personnel problem. The other problem concerns the international trade implications of the presence of the disease in Mexico.

First, the Human Relations Problem: The Commission has about 5,000 people working for it (a figure which does not include the army personnel which does much of the quarantine work and which functions as escort for the field workers). About 1,250 of these are United States citizens, paid by the United States government. About 250 are Mexicans paid by the Mexican government. About 3,500 are on the so-called Joint-Commission payroll and are Mexicans. The Joint-Commission payroll is largely met by the United States.

Many jobs are duplicated—that is, the United States employee with a particular task has a Mexican counterpart. This is not

true of the vaccinators, of those who kill the cattle, and of the chauffeurs, military escorts, and people of that sort.

The United States personnel neither vaccinates animals nor slaughters them. This is one of the "smarter" things which the Commission has done. The idea that the United States personnel should not do the things of which the native population would be most resentful was surely well calculated. The United States inspectors, veterinarians, etc., have an advisory, suggestive, and consultative role, and a very real influence upon what is actually done both at high and low levels. And some of the work, such as inspecting cattle and disbursing money, they actually participate in directly.

It is the effect of this work upon the rural population which is at present of prime concern. Some elements in the rural population have resisted this work bitterly and have been especially violent against the United States. The Sinarquistas have, at least until this year, strongly opposed the program. They have inveighed against the foreign meddling, and they have inveighed against the slaughter, they alleged "unnecessary" slaughter, of cattle. This opposition reached its climax on September 1, 1947, when a Mexican veterinarian and his military escort of six soldiers were killed by Sinarquistas at Senguio in the state of Michoacan (*Tiempo*, 12 September 1947, p. 5).

Actually during the course of the program two of the United States personnel have been killed in incidents involving the native population. One such incident occurred in the northern part of the Isthmus of Tehuantepec, near Coatzacoalcos. Apparently this shooting, which occurred along the river, was done by some drunks, and it was accidental that the victim was a United States employee of the Anti-aftosa Commission. The other incident occurred in the northern part of the state of Mexico, and was almost certainly the result of positive direct opposition to the vaccination program of the Commission.

Because of the unpopularity of the work, especially of the slaughter program, the inspection, vaccination, and quarantine brigades are accompanied by military escorts. This has made possible at least one highly unfortunate episode. According to the report in *Ultimas Noticias* of 19 July 1949 a killing of

four Mexicans took place as the result of the express orders of a North American employee of the Aftosa Commission, and the incident caused great indignation. Three of those killed were baseball players; two from Tlalpujalina, where the unfortunate incident occurred, and one from Maravatio. The newspaper commented that it was almost inconceivable that the North American had the authority to command Mexican soldiers to execute such a reprisal. He apparently had tried to quiet the baseball players because the noise of their party would not let him sleep, but he was unable to do so. This was about two o'clock in the afternoon. He then, it is alleged, called "his" four soldiers and ordered them to fire on the group. The information is not entirely clear. It may be that at the time he gave the order to fire, a baseball player had already taken a gun away from one of the soldiers and shot him. It may be that any order, if given, was that fire be over the heads merely to frighten. How accurate the account of the episode is, is not certain. Report of the incident seems to have been promptly hushed up. But that some such incident occurred seems certain and highly unfortunate.

Another episode which was highly unfortunate from the "good-will" point of view was the robbing of the Toluca office of the Commission by two of its United States personnel in July 1949. But likewise, slightly later, the Pachuca office was robbed by one of the Mexican employees of 50,000 pesos.

Also there have been complaints about improper disbursements by the Commission—particularly in connection with payment for slaughtered cattle. A case in the state of Tabasco allegedly involved the killing of cattle before the blood tests for aftosa had been made, under circumstances where the farmers claimed the disease was not aftosa. Among the animals killed was a prize bull for which the Commission had to pay 12,000 pesos (*Tiempo*, 13 February 1948, p. 13). Other cases have allegedly involved payments to influential Mexicans for cattle not actually slaughtered, or payment at figures substantially higher than were justified.

That isolated instances of this sort have occurred is certain. But it would seem that the Commission itself has done a conscientious job of trying to hold such practices to a minimum. This

is a rather difficult feat in rural Mexico considering the rather large sums of money that are being disbursed with a free hand and that are being carried around in strong boxes. The campaign, by its very nature, and the nature was first chosen by the United States, lent itself to such practices. It is probably more remarkable that there has not been more malfeasance than that there has been so much.

One other instance should be mentioned, which apparently was drastically misused by the press—especially by some segments of the "rightist" press in Mexico. There was an airplane wreck on Orizaba in July 1948, which involved an anti-aftosa plane, several Mexican and United States employees of the Commission, and several people to whom a free ride to Mexico City was being given (*Tiempo,* 16 July 1948, p. 5). All were killed, sixteen people. It was at one time reported that United States military personnel had been flown in and that they had prevented the Mexican authorities from proceeding to handle the case. This apparently involved a gross misstatement of what happened—made by newspapermen who were irritated, especially at the Americans, because of failure to provide them with assistance (especially food) which was desirable in reaching the remote scene of the wreck. That some incidents occurred seems certain, but they seem to have been as much between newspapermen and Commission people as a line of cleavage as between Mexicans and Americans as a line of cleavage.

It is possible to make some general statements with regard to the human relations problem. The Mexican government and the Mexican people have shown a remarkable amount of forbearance and self-control in allowing foreigners to come into their country and take an active part in a program involving the vaccination and slaughter of cattle in rural areas—as anyone will appreciate who has heard that the militia had to be called out in the United States to force midwestern farmers to submit their cattle to vaccination in connection with the Bang's disease epidemic. Again there is the case of the Texas farmers in the early 1920's who dynamited the dipping vats in which their cattle were to be treated for fever ticks. How would those same farmers have reacted if that program

had been conducted with half Mexican government personnel and if substantial numbers of the cattle, including healthy cattle, had been slaughtered? It is occasionally a good idea to put oneself in the other man's shoes, something Texas ranchers were not doing when as late as November 1947 the Texas and Southwestern Cattle Raisers' Association was still demanding mass slaughter of Mexican cattle, without any apparent regard for the efficacy of the mass slaughter program up to that date, or for the effect of the program on Mexico, or for the possibility that a program of vaccination might be successful.

In any event the decision not to have the United States personnel do the actual vaccinating and slaughtering was probably an exceedingly wise one.

Much of the personnel which has been brought down from the United States, aside from the technical experts and the office workers, has consisted of cowboys from the western and southern states. The qualifications for doing much of the work have been five years punching cattle, ability to speak Spanish, and ability to ride a horse. Such men have obviously been best suited to serve as cattle inspectors, cattle appraisers, etc. The American cowboy added to the Mexican has been a colorful addition to the landscape both on the Mexican countryside and in the hotel lobbies in Mexico City. In some cases he has been a crude, drunken, "Mexican despising" addition, and has gotten into trouble accordingly. That the Mexicans have responded as well as they have to this "invasion" of foreigners with governmental functions is a credit to their forbearance and good manners—and indeed has been highly fortunate. It should be noted that what is involved here is not merely relations between United States tourists and owners of curio shops in Taxco and Mexico City. What is involved is a relation which has had repercussions in the smallest villages of the remote mountain areas of rural Mexico. As was said before, that the campaign has gone so well reflects credit on the Mexicans—and on the vast majority of the Commission workers who are undoubtedly trying to do a good job under the handicap of what was initially a poorly thought out program which necessitated hurriedly bringing down from the United States some not particularly well qualified people. Some of the Commission personnel has

been drawn from segments of the United States populace which have not been famous for a benign attitude toward things Mexican. And some were "as bad as the Mexicans" at consuming their salaries in drunken sprees. A $3000 (U. S.) per year salary plus forty pesos per day of expense money was extremely good pay for some of the cowboys. It is not strange that some did not work out so well. But it is rather a joke that the reason they have not in many cases has been because they have done the same thing with their money that we are fond of saying a Mexican will do, and which, in that context, proves that there is no point in raising the Mexican's pay. It seems that both the Mexican and the American will spend bonanza income in a wasteful way.

Second, the International Trade Problem: The United States and Mexico, as was mentioned at the beginning of this article, had a treaty as of 1928 providing that neither of the parties would import cattle from a country where the foot-and-mouth disease was active. In addition to this safeguard the United States was enforcing a positive embargo against cattle and chilled and frozen meat imports from 96 geographical units out of 139 in the world. It is has been a matter of argument for many years as to how justified this embargo has been as a sanitary measure. It has been alleged that it has been principally used as a protective measure to keep out Argentine beef which might be imported into the United States in competition with domestic beef.

Be that as it may be, the embargo has meant that in recent years Mexican cattle has been almost the only foreign beef to come into the United States. Before 1946, it was coming in at the rate of about 500,000 head a year, principally light weight beef cattle in the tariff range between 200 and 700 pounds and worth about $50 a head. This cattle was subject to a tariff of 1½c a pound, which, converted to an ad valorem base for 1945, was 19.1%. In addition the tariff on chilled and frozen beef has been 6c per pound which was an effective 41.6% in 1945. Thus the tariff protection given the domestic cattle industry against the Mexican industry was substantial but not prohibitive. However, it was more substantial than these figures at first glance may make it appear. It has been

virtually impossible for Mexican chilled or frozen meat or for Mexican canned meat to come into the United States. Only a little trade of this sort occurs in the border zones. The excuse, on the part of the United States, for making it difficult for such Mexican meat to come in was stated to be that the Mexican meat inspection service did not correspond to the standards required by the United States. Although it is literally true that Mexico has no satisfactory national meat inspection, it has been actually true that much of the Mexican meat has passed satisfactory inspection. Evidence that these measures taken against Mexican meat contain a very substantial element of protection has been found in the fact that the sanctions against Mexican meat have been in the hand of the Bureau of Animal Industry rather than in the hands of the Pure Food and Drug Administration where they would seem more properly to belong. The Bureau of Animal Industry would seem to be far more susceptible to pressure from the domestic livestock industry than the Pure Food and Drug Administration would be likely to be.

One might be inclined to say that the only open channel through which foreign meat could come into the United States in any quantity in 1945 was in the form of Mexican cattle on the hoof. And in the case of this loophole fattening and processing was in the hands of the United States cattle industry. Then, one might be inclined to say that the presence of the foot-and-mouth disease in central Mexico provided the opportunity for closing this loophole to the benefit of the United States cattle industry just at the time when there was a major meat shortage at the end of the war. And in the period that followed December 1946, meat from the clean area of northern Mexico was kept out along with meat from the area where the disease existed in central Mexico. This exclusion occurred automatically because the United States law has provided for several years that the foot-and-mouth embargo should be operated on a country by country basis. Thus the "clean" cattle of northern Mexico have automatically been kept out along with the "suspect" cattle from central Mexico.

The fear that the disease might spread to northern Mexico has proved more than enough, to date, to prevent any serious

consideration of change in the law to allow the northern cattle to come in, even though the northern quarantine line has been very well maintained for the last two years. This situation raises a very interesting question as to just how extensive precautions are justified in the case of a disease such as foot-and-mouth. Some of the Brazilian bulls which may have brought the disease to Mexico are now in the United States for breeding purposes. And yet cattle from half of Mexico, which there is every reason to believe would constitute no danger, cannot come in despite a very real need in the consuming market in the United States for such meat. It will be interesting to see how effective the resistance to the raising of the embargo on Mexican cattle is, after the epidemic is over.

However it should be admitted that, as a result of the slaughter of cattle in central Mexico, there has been a considerable reduction in the supply of meat available for internal consumption; and Mexico has far more need of her own cattle than was formerly the case. Thus, there probably would have been a considerable reduction in meat shipments to the United States in any case. In fact the situation was so bad in July 1949 that Secretary of Agriculture Nazario Ortiz Garza stated there would be no more meat exports from Mexico until the domestic situation improved (*Excelsior*, 19 July 1949, p. 1).

It would seem that the anti-aftosa campaign in Mexico represents a strange combination of characteristics. It represents a tremendous display of coordinated Mexican-American effort to stamp out a livestock disease. Hindsight indicates that in the early stages the basic program, when slaughter was emphasized, was largely misguided; and it was misguided on the insistence of the United States. The United States had had experience with the effective (at least on a small scale) but drastic slaughter program. The rest of the world has fought the disease with vaccination. Slaughter proved too drastic a cure for the Mexican situation, and in November 1947 a change to emphasis on vaccination occurred.

The presence of large numbers of United States government workers in Mexico with governmental functions has presented a delicate problem. It was natural that the anti-aftosa campaign should be unpopular in the rural areas. And it was

obvious that if foreigners took too prominent a role in the campaign their popularity would not be increased. Combined with this a strong Mexican political group, the Sinarquistas, chose to oppose the campaign for some time. To give cause for this attitude, in certain instances, the conduct of some of the American personnel has been extremely regrettable. That relations still seem to be on a friendly basis is greatly to the credit of the Mexicans and to the credit of the large majority of the United States personnel.

The possibility that the presence of the foot-and-mouth disease in Mexico has been used to justify an unwarranted amount of discrimination against Mexican cattle, under the circumstances, does not reflect great credit upon the United States or upon the pressure groups in the United States which have taken advantage of the situation. It can probably be said of these groups that they have been genuinely alarmed about the menace which the disease is; but their attitude has not been particularly statesmanlike and has not gone much beyond a blind demand that Mexican cattle be slaughtered and that the frontier be closed to all Mexican cattle, a very convenient attitude and one which can well be justified with considerable righteous indignation. It will be interesting to see, after the disease has been quite obviously brought under control in Mexico, how strong and effective the resistance to reopening the Mexican frontier turns out to be.

Tin Control and Bolivia's Foreign Exchange Position, 1930-39

By Burton C. Hallowell

No systematic study has been made in recent years of the effectiveness with which intergovernmental commodity control agreements (ICCAs) prevent or alleviate the difficulties encountered by undeveloped countries producing a few primary commodities for export. The cyclical volatility of primary product prices and the unwillingness or inability of producers and producing countries to undertake long-run supply adjustments promptly, often create difficult problems for producing countries and for international trade. Many investigators as well as policy-makers accept ICCAS at least temporarily as the best available solution for these problems.[2] The Havana Charter for an

* Mr. Hallowell is assistant professor of economics at Wesleyan University, Middletown, Connecticut.

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[2] See, for example, the views of Dr. William T. Phillips, representing the U. S. Department of State. U. S. Congress, Senate, *Trade Agreements System and Proposed International Trade Organization Charter*, Hearings before the Committee on Finance, U. S. Senate, 80th Cong., 1st Sess., March 20-April 3, 1947 (Washington: Government Printing Office, 1947), Part I, p. 475. See also: Bernard F. Haley, "The Relation Between Cartel Policy and Commodity Agreement Policy," *American Economic Review*,

International Trade Organization provides for ICCAs which conform to certain stated principles, even though ICCAs involve practices inconsistent with the spirit and provisions of the Charter as a whole.

This paper analyzes the effect of one ICCA, the International Tin Control Scheme (ITCS),[3] on Bolivia's foreign exchange position during 1930-39. Although this is but one aspect of the impact of the ITCS upon Bolivia, the analysis also throws light on the contention that ICCAs avoid practices more restrictive of international trade than those inherent in the ICCAs themselves.[4] In general, the method is to determine the nature of the change in Bolivia's foreign exchange position during each of three periods (1930-31, 1932-35, 1936-39) and to examine the importance of the ITCS in accounting for each change. In the absence of more satisfactory data,[5] the annual change in the Central Bank's holdings of gold and foreign exchange (Table 1) has been used as a point of departure in determining Bolivia's foreign exchange position.[6]

Papers and Proceedings, XXXVI (May, 1946), 718-19; Edward S. Mason, *Controlling World Trade* (New York: McGraw-Hill Book Company, Inc., 1946), Part II, especially pp. 239-40; George W. Stocking and Myron W. Watkins, *Cartels or Competition?* (New York: Twentieth Century Fund, 1948), Report of the Committee on Cartels and Monopoly appointed by the Trustees of the Twentieth Century Fund, pp. 440-43.

[3] The ITCS was signed on February 28, 1931 by the Governments of British Malaya, Bolivia, Nigeria, and the Netherlands East Indies. The Scheme became effective on March 1, 1931. Texts of the various ITCSs (1931, 1934, 1937) are published in: International Labour Office, *Intergovernmental Commodity Control Agreements* (Montreal: I.L.O., 1943), pp. 73-103.

[4] See Mason, *loc. cit.*

[5] Data for 1930-39 on the foreign exchange and gold reserves of Bolivia's two commercial banks are incomplete, but the data available indicate that Bolivia's reserves were carried mainly by the Central Bank and that changes in those reserves held by the commercial banks did not significantly alter the picture shown in Table 1. Bolivia prepared no estimates of her international balance of payments covering 1929-37, and the data available for 1938-39 are incomplete.

[6] The term international reserves is used hereafter for convenience to mean gold and foreign exchange reserves, both those required for cover reserves and those in excess of cover reserves.

TABLE 1

Banco Central Gold and Foreign Exchange Reserves, 1929-39
(Thousands of Bolivianos)

End of Year	Total Reported (Adjusted) (a) (1)	Minus: Gold Loan Collateral, London (b) (2)	Net Total (3)	Annual Change Net Total (4)	Re-valuation (c) Corrections (5)	Reductions in London Gold Loan (d)	Purchases from Public (7)	Annual Change Corrected (8)
1929	55,628	-	55,628	-	-	-	e	-
1930	39,092	-	39,092	—16,536	-	-	-	—16,536
1931	26,679	-	26,679	—12,413	-	-	— 247[f]	—12,660
1932	29,485	-	29,485	+ 2,806	-	-	— 749	+ 2,057
1933	14,576	-	14,576	—14,909	—18,309	-	— 1,397	—34,615
1934	13,718	8,592	5,126	— 9,450	-	-	— 1,643	—11,093
1935	28,774	8,592	20,182	+15,056	-	-	— 9,189	+ 5,867
1936	105,635	41,502	64,313	+43,951	— 1,133	+ 2,324	— 9,193	+35,949
1937	147,633	41,502	106,131	+41,998	-	+12,645	—11,834	+42,809
1938	96,257	41,502	54,755	—51,376	-	+ 9,452	— 8,418	—50,342
1939	157,198	62,253	94,945	+40,190	—32,419	+10,079	— 8,123	+ 9,727

(a) Total reported minus silver and nickel coins, and notes and checks of other Bolivian banks held by the Banco central.
(b) Chase Bank Loan, London.
(c) Estimates from data reported by the Banco central.
(d) Release of gold collateral held in London against the Chase Bank Loan of 1934.
(e) Not available.
(f) Includes 1930.

Sources: Banco central de Bolivia, "Boletin" (La Paz), XV (Oct.-Dec., 1942), 6; Banco central de Bolivia, "Memorias, 1934-39" (La Paz); Direccion general de estadistica, "Extracto estadistico de Bolivia" (La Paz), 1935), Vol. I, Part I (a). Table No. 10; Direccion general de estadistica, "Finanzas, 1939" (La Paz), Economia bancaria, p. 11; William A. Neiswanger and James R. Nelson, "Inflation in Bolivia," Report No. I, The Internal Causes of Inflation in Bolivia (mimeographed report, Office of the Coordinator of Inter-American Affairs, Washington, D. C., 1944), p. 106.

Note: The annual changes in the Banco central gold and foreign exchange reserves reported in column 8 are not strictly expressed in constant currency units. The external value of the boliviano declined during 1929-39, and the Banco central revalued its international reserves in 1933, 1936, and 1939. Adjustments for these revaluations have been madein the table with the result that data in column 8 for 1930-33 represent annual changes in international reserves valued at 18 pence per boliviano; for 1934-36, annual changes in international reserves valued at an unreported sterling value of the boliviano; and for 1937-39, annual changes in international reserves valued at 3 pence per boliviano.

Bolivia experienced a marked deterioration in her foreign exchange position during 1930-31. Sales of foreign exchange by the banks exceeded purchases by Bs 22.7 million in 1930, and by Bs 9.8 million in 1931. The greatest part of this drain was borne by the Central Bank, which suffered a reduction of Bs 29 million in its international reserves during 1930-31.[7]

What accounted for this situation? (1) Bolivia's merchandise export receipts (Table 2) were reduced by 63 per cent from 1929 through 1931. This rate of decrease approximated that of tin export receipts, which constituted 75 per cent of total merchandise exports. Both the price of tin and the quantity exported from Bolivia declined markedly during 1930-31. (2) Although by the end of 1931 the value of merchandise imports had been reduced (59 per cent) nearly as much as merchandise receipts (63 per cent), there was a lag, especially during 1930, in the downward adjustment of imports. This lag was attributable to a slow reduction in costs and incomes relative to export values and to the purchase of imports for inventory. Imports decreased during 1930 at about the same rate as the money supply (Table 3). The reduction in the money supply, caused by the excess of bank sales over purchases of foreign exchange,[8] was offset during 1930 in part by an expansion of loans and investments by the banks of Bs 6.7 million.[9] Anticipation of exchange depreciation and of the imposition of direct import controls no doubt accounted for the imports of merchandise in excess of immediate requirements.[10] (3) Servicing Bolivia's public debt held abroad ($61.5 million payable in dollars as of the end of 1929) also exerted pressure on Bolivia's foreign exchange position during 1930.[11]

[7] Table I understates the reduction during 1930 in the Bank's international reserves and overstates the reduction in 1931 by about Bs 4 million. This amount of foreign exchange had been sold by the Bank during 1930, but was not deducted in the Bank's balance sheet until after the end of the year.

[8] Bolivia maintained a gold exchange standard until September, 1931.

[9] This increase represented advances to the public and to the Government by the Central Bank, commercial banks and one mortgage bank. Banco central, *Boletin*, III (May-June, 1931), 14.

[10] *Ibid.*, IV (Oct.-Dec., 1932), 4.

Annual interest and amortization on this debt amounted to about $5.8 million, and full transfer of this amount during 1930 would have consumed 38 per cent of the excess of merchandise export receipts over import values. Payments amounting to $1.7 million which were made during 1930 accounted in part for the rapid decline in Bolivia's international reserves during the year.[12]

What was the effect of tin control on Bolivia's foreign exchange position during 1931? The International Tin Committee (ITC) was unable during 1931 to secure a firm grip on the London tin market, and the London price of tin averaged 17 per cent lower than in 1930. Bolivia's 1931 national tin quota, however, was probably not far below what Bolivia would have produced without the quota. Furthermore, this quota was overexported. If it is assumed that although the ITC had insufficient power to raise the price of tin, its operations served to prevent the price from falling as much as it would have without control, it could be countered that despite the fact that Bolivia's 1931 quota was exceeded, the ITCS may have reduced Bolivia's tin exports slightly. Thus the effect of tin control in Bolivia's exchange position during 1931 was negligible.

II

The Central Bank's international reserves were virtually exhausted during the Chaco War (1932-35). The drain was particularly acute during 1932-34.[13] During 1935, the Bank's international reserves showed a slight improvement.

Tin export receipts reached their lowest point in 1932. As a consequence, the Central Bank was forced to draw again

[11] Private debt held abroad was largely in the form of stocks, on which no dividends were paid during 1930-31.

[12] U. S. Tariff Commission, *The Foreign Trade of Latin America* (Washington, 1940), Part II, Section 2, p. 46. Bolivia defaulted during the third quarter of 1930, and regular payments were not resumed during the thirties.

[13] Between September, 1931 and the end of 1932, the pound sterling depreciated relative to the dollar. In terms of dollar buying, as distinct from sterling buying power which the data for this period in Table I reflect, the reduction in international reserves was greater than that recorded.

TABLE 2

Total Exports, Imports, National Quotas, Tin Exports and Tin Prices, Bolivia, 1929-39

Year	Total Merchandise Imports £ (thousands)	Total Merchandise Exports £ (thousands)	Tin Exports £ (thousands)	Tin Exports as a Percentage of Total Exports	Tin Exports (metric tons, fine tin)	National Tin Quota [c] (metric tons, fine tin	Price of Tin (£ per long ton fine tin)
1929	5,358	12,057[b]	9,249	76.7	47,082	--	204
1930	4,303	7,518	5,529	73.6	38,758	--	142
1931	2,207	4,487	3,532	78.7	31,637	31,090[d]	118
1932	1,384	3,028	2,299	75.9	20,918	19,576	136
1933	2,108	3,879	2,850	73.5	14,937	14,922	195
1934	3,292	7,296	5,292	72.5	23,201	23,686	230
1935	3,666	7,328	5,712	78.0	25,403	27,750	226
1936	4,160	7,501	4,962	66.2	24,460	40,155	205
1937	4,265[a]	9,345	6,142	65.7	25,531	49,845	242
1938	5,105[a]	7,112	4,853	68.2	25,893	22,386	190
1939	4,848	8,836	6,278	71.1	27,915	35,503	226

[a] Revised figures.

[b] Adjusted change in valuation of tin exports effective September 1, 1929.

[c] Includes buffer stock quotas.

[d] Includes actual exports for January and February.

SOURCES: Banco central, *Boletin*, Feb.-March, 1930, p. 7; *ibid.*, XII (Oct.-Dec., 1940), 24; *ibid.*, XIII (Jan.-March, 1942), 34; Banco central, *Memorias*, 1931-39; *Bolivia* (New York), IV (March-April, 193), 27; Direccion general de estadistica, *Comercio exterior de Bolivia*, 1930-39; K. E. Knorr, *Tin Under Control* (Stanford University: Food Research Institute, 1945), pp. 304-05; Republic of Bolivia, Supreme Resolution, September 7, 1934.

TABLE 3

Means of Payment,[a] Bolivia, 1929-39
(Millions of Bolivianos)

Year	Total (end of year)	Annual Change	Year	Total (end of year)	Annual Change
1929	76.5	--	1935	379.9	+150.0
1930	61.2	— 15.3	1936	457.9	+ 78.0
1931	54.1	— 7.1	1937	560.1	+102.2
1932	93.8	+ 39.7	1938	593.1	+ 33.0
1933	110.4	+ 16.6	1939	799.5	+206.4
1934	229.9	+119.5			

[a] Includes Bolivian notes and coins in circulation outside the Central Bank, and private and government demand deposits in the Central Bank, two commercial banks, and the Mining Bank.

SOURCES: Banco central, *Boletin*, XI (Oct.-Dec., 1939), 4, 36; Banco central, *Memorias*, 1929-39.

upon its international reserves.[14] The improvement in the price of tin during 1932 [15] was more than offset in its effect on Bolivia's export receipts by sharp reductions in Bolivia's tin quota. As long as quotas were strictly observed, the elasticity of demand for each country's tin under control was the same as for tin in general.[16] Since the world demand for tin was inelastic, any reduction in quota was outweighed by the price increase and resulted in greater tin export receipts for the

[14] The recorded decrease of Bs 35 million (Table 1) in the Bank's international reserves during 1933 includes a large volume of 1932 transactions. Central Bank operations during 1932 resulted in an excess of sales over purchases of foreign exchange amounting to nearly Bs 16 million. This excess was not deducted from the Bank's international reserves in the balance sheet for December 31, 1932 and was shown among the liabilities as "operations pending." Thus, the reduction in the Central Bank's international reserves was about the same in 1933 as in 1932.

[15] Knorr attributes the price rise primarily to action by the ITC and secondly to business revival in some consuming countries. *Op. cit.*, p. 123.

[16] This assumes that tin is a standardized product, which in fact is not strictly true.

producing areas.[17] During 1932, however, the full price increase did not occur promptly in response to a reduction in quotas. Visible world stocks of tin reached a peak in July, 1932, and were reduced only slowly thereafter. Tin prices did not rise substantially until a dent was made in stocks. Furthermore, there was a lag between the date when producing areas commenced to reduce exports and the appearance of a reduced supply on the world market. This lag averaged two to three months and covered the time consumed in transport and smelting. When the ITC reduced quotas drastically and with a frequency roughly equal to the two to three months lag, the period of loss in exchange receipts was prolonged, unless the world market acted in anticipation of the reduction in supply.[18] Although Bolivia was able to offset the slow response of price to lower quotas to some extent by overexport,[19] the ITCS during 1932 no doubt contributed to the deterioration in Bolivia's exchange position.

During 1933, Bolivia's export receipts showed marked improvement as a result of the sharp rise in the price of tin, even though the 33 per cent (of 1929 tin exports by volume) quota effective July 1, 1932 was continued throughout the year. Some price increase might well have occurred during 1933, however, without the ITCS, since there was a definite increase in world absorption of virgin tin.[20] Bolivia's tin export receipts continued to rise during 1934, as the result of a buffer stock quota, an increased ordinary quota, and the continuation throughout the year of the high price of tin reached at the end of 1933. Although it is impossible to allocate the share of Bolivia's increased export receipts attributable to the ITCS alone, there

[17] The elasticity of demand of the commodity is a relevant consideration in making a case for ICCAs based on the need of avoiding disruptive unilateral trade controls by economically undeveloped countries. If demand is such that quota reductions generally outweigh the effect of price increases on export receipts, a control scheme would tend to increase, rather than decrease, the possibilities of unilateral trade controls.

[18] Between March 1, 1931 and July 1, 1932, the ITC reduced quotas five times.

[19] Bolivia's overexport was more than offset by underexport of other Agreement countries.

[20] Knorr, op. cit., p. 302.

is no doubt that in 1933-34 the operation of tin control improved Bolivia's exchange position.

Although the annual average price of tin fell slightly in 1935, the decrease was insufficient to offset the increases in Bolivia's tin quota and tin exports. Bolivia commenced to underexport tin regularly in May, 1935, and during the last quarter permitted all producers to export freely. Thus Bolivia, in effect exported tin without restriction and augmented her foreign exchange receipts by tin sales at a world price maintained by production restriction in other Agreement countries.

Although the ITCS increased Bolivia's tin export receipts during 1933-35, did the gain accrue to Bolivia in the form of increased imports or to foreign investors in the form of dividend payments? Bolivia introduced exchange control formally on May 19, 1932,[21] and tin exporters were required to deliver a percentage of their total export receipts to the Central Bank at the official buying rate. Tin exporters during 1933-35 delivered on the average 48 per cent of their tin export receipts (Table 4) to the Central Bank. Although exchange control did not substantially alter the payment practices of locally-owned mining firms, which converted most of their foreign receipts into bolivianos to meet current outlays, it did restrict the large producers in making payments in foreign currencies and in accumulating balances abroad.[22] During 1933-35 Patino Mines (Bolivia's largest tin producing company) accumulated in Bolivia Bs 19 million in idle balances, while the Government utilized the exchange for necessary imports and other payments abroad.[23] Aramayo Mines also accumulated idle balances of an undetermined amount as a result of exchange control.[24] Furthermore, if the producers had been able to retain their gains from tin control in the form of foreign exchange, producers'

[21] Law, May 19, 1932, Republica de Bolivia, *Anuario administrativo*, 1932 (La Paz), pp. 395-96.

[22] More than three-quarters of Bolivia's tin production was controlled during the period by three large producing groups: Patino, Hochschild, and Aramayo.

[23] Patino Mines and Enterprises Consolidated (Inc.), *Annual Report*, 1935, p. 4.

[24] *Mining Journal* (London), CLXXXXIV (July 11, 1936), 675.

TABLE 4

Tin Export Drafts Delivered to the Banco Central, 1932-39

	Tin Export Receipts £ (millions)	Tin- Export Drafts Delivered to Banco Central £ (millions)	Percentage of Tin Export Receipts Delivered to Banco Central (2) Divided by (1)	Reported by Industrial Miners Ass'n.
1932	2.3	[a]	[a]	43
1933	2.9	1.4[b]	48	47
1934	5.3	2.5	47	53
1934	5.7	2.8	49	52[c]
1936	5.0	2.2	44	47[c]
1937	6.1	2.2	36	[a]
1938	4.9	1.5	31	[a]
1939	6.3	2.0	32	[a]

[a] Not available.
[b] Estimate.
[c] First eight months.

SOURCES: Asociacion de industriales mineros de Bolivia, *XI Informe Anual* (La Paz, 1935), p. 23; Banco central, *Boletin*, V (July-Sept., 1933), 22-24; *ibid.*, V (Oct.-Dec., 1933), 19-21; Banco central, *Memorias*, 1934-39; Direccion general de estadistica, *Comercio exterior de Bolivia*, 1929-39; Investigacion del estano en Bolivia, *El estano en Bolivia* (La Paz, 1935), unnumbered appendices; U. S. Bureau of Foreign and Domestic Commerce "Commercial and Industrial Survey of Bolivia," *Special Circular No.* 388 Dec., 1937, p. 21.

balances held abroad would probably have increased, since few dividends to foreign shareholders were declared during 1933-35.[25] Patino Mines' balances held in New York and London are the only data available to the writer. These balances declined about 39,000 pounds sterling during 1933-34 and increased 221,000 pounds sterling during 1935.[26] The 1935 increase in cash holdings abroad was distributed in large part to shareholders during 1936.

[25] Patino Mines declared no dividends during the period. Aramayo Mines declared a 2½ per cent dividend in January, 1936, payable out of 1935 profits. No data are available concerning the Hochschild companies. These were the principal companies with foreign stockholders.

There is strong presumption from the above analysis that exchange control succeeded during the Chaco War in garnering for the Government a share of the additional foreign exchange from tin exports attributable to the ITCS, although the tin producers were able to divert some of the gains into balances abroad and ultimately into dividends to foreign shareholders.

Since the ITCS tended to ameliorate rather than to deteriorate Bolivia's foreign exchange position during most of 1932-35, what accounted for the steady drain on Bolivia's international reserves? War expenditures abroad coupled with the method used by the Bolivian Government in financing the Chaco War were the principal factors depleting Bolivia's international reserves. Roughly 60 per cent of the national Government's expenditures during 1933-35 was financed by borrowing from the Central Bank.[27] Local, departmental, and national Government expenditures of new money during 1932-35 amounted to Bs 304 million (Table 5). The rate of increase of merchandise imports closely approximated the rate of increase in Government new money expenditures during 1933-34, but not during 1935. The Central Bank's international reserves were immediately depleted when the Government used the proceeds of its loans from the Bank to purchase the Bank's international reserves, since this process left unchanged the internal means of payment in the hands of the public.[28] Since the Government's requirements abroad for war materials were urgent and large, this no doubt accounted for the greatest part of the depletion in

[26] Reported balances as of the end of the year in pounds sterling were: 1932, 382, 151; 1938, 378, 370; 1934, 169, 142; 1935, 617, 704. The reported balance for 1934 was adjusted to 343,000 pounds sterling to allow for an advance made in foreign exchange to the Bolivian Government; the balance for 1935 was adjusted to 564,000 pounds sterling to allow for partial repayment of the advance. Patino Mines, *Annual Reports*, 1932-35.

[27] Computed from data in Table 5 and expenditure data reported in: Direccion general de estadistica, *Extracto estadistico de Bolivia* (1935), Vol. I, Part II (b), Tables nos. 10-12.

[28] This assumes that exchange control was not successful in curtailing the public's purchases abroad by an equivalent amount. See following paragraph.

the Bank's international reserves after the middle of 1932.[29] The Central Bank later estimated that it had placed 2.5 million pounds sterling of its international reserves at the disposal of the national Government during the three-year period.[30]

Government new money expenditures within the country also weakened Bolivia's foreign exchange position by their expansionary effect upon incomes and imports. Cash in circulation outside the Central Bank increased nearly five times during 1932-35, and non-Government demand deposits six to seven times. Although foreign exchange for imports was rationed by the Exchange Control Board,[31] there was throughout 1932-35 a curb market in foreign exchange where rationing was accomplished by price rather than by direct control. Curb market rates depreciated throughout the period, both absolutely and relative to the official rate. By February 1935, the curb rate was roughly five times the official rate. Purchases were made through this market by those who could pay the prices. Undoubtedly, the curb market absorbed some of the purchasing power created by Government financing.[32] In so far as the Government was unable to divert into the banks the exchange which fed the curb market, Bolivia's accumulated international reserves were depleted to meet the Government's foreign exchange requirements.

[29] Central Bank purchases of foreign exchange about equalled sales during the first half of 1932. Sales tripled during the rest of the year as the result of huge purchases by the Government, while Central Bank purchases remained unchanged. Banco central, *Boletin*, IV (Oct.-Dec., 1932), 4-5.

[30] June 1932 to June 1935. *Ibid.*, VII (1934-35), 3. In the last issue of its monthly bulletin, before the war forced suspension of publication, the Central Bank placed full responsibility for the reduction in its international reserves during 1933 upon war expenditures abroad. *Ibid.*, V (Oct.-Dec., 1933), 5.

[31] Import permits enabled the recipients to purchase exchange at an official rate, which was depreciated gradually during the period. The Government's official selling rate at sight averaged Bs 13.5 to the pound sterling in 1931, Bs 16.1 in 1932, Bs 19.6 in 1933, Bs 20.2 in 1934 and Bs 20.3 in 1935. After January 24, 1935, a large volume of sales of exchange to the public was made at the rate of Bs 80 to the pound sterling.

[32] The Government recognized the curb market officially on November 5, 1934, in order to bring it into the open. The results were unsatisfac-

TABLE 5

Annual Changes in National, Departmental and Local Government Debt and Deposits, 1932-39
(Millions of Bolivianos)

Year	National Government [a]	Departmental and Local Governments [a]	Total
1932	+ 41.7	[b]	+ 41.7
1933	+ 65.5	— 2.1	+ 63.4
1934	+101.3	+ 7.2	+108.5
1935	+ 82.9	+ 7.6	+ 90.5
1936	+ 42.7	+ 0.2	+ 42.9
1937	— 46.3[c]	— 0.6	— 46.9
1938	+ 4.2	+ 9.1	+ 13.3
1939	+ 1.3[d]	+23.2	+ 24.5
Net Total			
1932-35	+291.4	+12.7	+304.1
1936-39	+ 1.9	+31.9	+ 33.8

[a] Division between national government and other governments estimated for 1933-37.

[b] Not available.

[c] Excludes Bs 35 million from a revaluation profit used to reduce the internal debt.

[d] Adjusted from figure reported in source below.

SOURCE: Neiswanger and Nelson, *op. cit.*, p. 130.

III

Bolivia's foreign exchange position, as indicated by changes in the Central Bank's international reserves, improved during 1936-37, deteriorated sharply during 1938 [33] and showed a slight improvement in 1939.[34]

tory. Commercial importers increased their demand for imports, and persons holding balances in Bolivia apparently attempted to get them out of the country. The curb market was prohibited again on January 24, 1935, but it continued to operate.

[33] The decrease in international reserves as recorded in Table I understates the decrease in terms of dollar buying power, since the pound sterling depreciated relative to the dollar during the first half of 1938.

[34] During the second half of 1939, the pound sterling depreciated sharply relative to the dollar. In terms of dollar buying power, as distinct from sterling buying power, there was a slight reduction in the Bank's international reserves during 1939. Banco central, *Memoria*, 1939,, p. 30.

To what extent were these changes in international reserves attributable to tin control? Tin export receipts during 1936-39 continued to provide the greatest part (68 per cent) of Bolivia's merchandise export receipts. During 1936, however, both the price of tin and the volume of tin exports declined, reducing tin export receipts below the 1935 level. The increase in total export receipts during 1936 was attributable to the increase in price and in the export volume of other minerals. Without the ITCS, however, Bolivia's 1936 tin export receipts would probably have been lower, since her tin exports were not restricted by the national tin quota and the price of tin was supported by restriction in other Agreement countries.[35] During 1937, Bolivia experienced marked gains from the ITCS in the form of higher export receipts, since the price of tin rose sharply and Bolivia managed to export somewhat more tin than in 1936, but still far less than her quota.

Bolivia's tin export receipts were much lower in 1938 than in 1937, although they were probably higher than they would have been without the ITCS. The failure of the ITC to reduce quotas promptly and in proportion to the decline of tin consumption resulting from the 1937-38 business recession in the United States led to a sharp fall in the price of tin between September, 1937 and May, 1938. Successive reductions in quotas during the first five months of 1938 and adoption of the Buffer Stock Scheme by the ITC on June 2, 1938, however, brought about an increase in the price of tin during the last half of the year.[36] Reductions in Bolivia's national tin quota compelled her to reestablish the allocation of quotas among individual producers, but the effect of the quota reductions on tin export receipts was moderated considerably by overexports amounting to 18 per cent of the ordinary quota for 1938. During 1939, Bolivia"s quota was underexported, while the price of tin had recovered

[35] The successive ITCSs clearly overassessed Bolivia's tin production capacity in the thirties.

[36] The stated objective of the Buffer Stock Scheme was to narrow the price fluctuations to a range between 200 pounds sterling and 230 pounds sterling per long ton. Since these prices exceeded the existing market price, the mere stating of the objective exerted an upward pressure on the market price.

to 1936-37 levels by virtue of restriction in other Agreement countries. Thus, Bolivia's foreign exchange receipts benefited from the ITCS during this year.

Although the ITCS tended to support or to increase Bolivia's tin export receipts during 1936-39, it is probable that foreign nationals with investments in Bolivia received a greater proportion of the gain than during the Chaco War period. Tin exporters delivered on the average 35 per cent of their tin export receipts to the Central Bank as a result of exchange control during 1936-39 (Table 4), as compared with 48 per cent during 1933-35. The additional exchange made available to the tin producers during 1936-39 was used in large part for dividend and interest payments to foreign nationals and for the accumulation of balances abroad.[37] On the other hand, the Government by means of exchange control no doubt received more of the gain in tin export receipts than it would have received otherwise.[38] Some of this captured exchange may have been used by the Government to amortize outstanding sterling loans made earlier by the tin producers; the remainder, however, was available for purchase abroad of foodstuffs and manufactured products.

In general (1936 excepted) the annual changes in the Central Bank's international reserves reflected in direction the changes in tin export receipts; but it would be misleading indeed to account for the extent of these annual changes entirely in terms of tin export receipts. Strong pressure was exerted on merchandise imports throughout the period by expenditures of new money. Bank loans to the public increased Bs 167 million dur-

[37] See data on Bolivia's interest and dividend payments abroad during 1938-39 in United Nations, *Balances of Payments*, 1939-1945 (Geneva: United Nations, 1947, II. 1), pp. 29-30.

[38] Throughout 1936-39 the Patino Mines' *Annual Reports* contain this statement concerning compulsory sale of tin export drafts to the Government: "The Bolivian currency thus obtained is in excess of the company's requirements of this currency and, as free exchange transactions are not permitted, there has been a steady accumulation of Bolivian currency by the company."

ing 1936-39,[39] while net income-increasing expenditures of the various governments amounted to Bs 34 million (Table 5). A part of this new money was spent directly by the recipients for foreign exchange at the banks or at the curb market;[40] the remainder was spent initially for domestic products and services, and resulted in higher incomes, in higher prices, and ultimately in higher imports.[41] Increased incomes managed to exert pressure on merchandise imports, even though imports were rationed by means of foreign exchange control or price.[42] Furthermore, increases in merchandise imports were poorly timed relative to Bolivia's capacity to pay for them by merchandise exports. Imports increased 13.5 per cent during 1936, while exports increased only 2.7 per cent (Table 2). Imports increased 18.6 per cent during 1938, while exports declined 24 per cent. Bolivia's international reserves, which customarily cushioned the economy during such periods, were almost entirely depleted at the start of 1936, and were insufficient to withstand much strain at the start of 1938.[43]

[39] Includes the Central Bank, the two commercial banks, and the Mining Bank. The Central Bank maintained its discount rates to the public and to the commercial banks at a relatively low level "to help the debtor" from 1932 until August, 1938, when the rates were increased slightly and unsuccessfully for the purpose of "defending the exchange rate."

[40] Banco central, *Memoria*, 1938, p. 26. The demand for foreign exchange for the import of construction materials and equipment was increased, since 94 per cent of the government's income-increasing expenditures were made by departmental and local governments for public works.

[41] The average money wage rate per shift in mining, which had shown little increase during 1932-35, increased three to four times during 1938-39. Civil service salaries also started to rise in 1936. Reluctance on the part of employers to grant wage increases was overcome in part by Government decrees ordering wage adjustments. Between May, 1936 and December, 1939, the cost of living index for La Paz increased from 100 to 374.

[42] Bolivia followed a policy of selective exchange depreciation so that there were multiple official selling rates for exchange made available through the exchange control board in addition to the curb rate. The official selling rates of the exchange control board as well as the curb rate depreciated throughout the period.

[43] A small cushion of international reserves was built up during 1937. Export receipts during 1937 were 24 per cent above the 1936 level, while

The increase in imports during 1936 consisted predominantly of foodstuffs and is explainable only by a complex of factors. On March 31, 1936 the Government recognized the curb market in foreign exchange and legalized it for almost all transactions not constituting an export of capital. This action undoubtedly tended to increase imports.[44] Furthermore, in the early summer the public was gripped by a general panic concerning the external and internal values of the currency in view of the continued Government budgetary deficit, additional sterling loans from the producers, the drop in the price of tin and Bolivia's failure to increase tin exports.[45] As a consequence, there was probably a shift out of idle cash balances to spending.[46] Attempts were also made to send capital out of the country.[47] The La Paz cost of living index rose 63 per cent between May, 1936 and the end of the year. The curb market rate depreciated from Bs 83 to the pound sterling in May to Bs 170 in September.[48] The Government managed to quiet the

merchandise imports increased only 2.4 per cent. As a result, the differentials among the various selling rates for foreign exchange were eliminated by midsummer, rationing of imports by the Exchange Control Board was discontinued, and the local boards throughout the country were closed. Exporters, however, were forced to continue the delivery of a stated percentage of their exchange to the Government, and the export of capital for noncommercial purposes was still prohibited. The decline in export receipts during the fall, following upon the recession in the United States, plus the desire to maintain the exchange rate, led to a reimposition of certain import prohibitions on November 9, 1937.

[44] See the preamble of the Supreme Decree, September 5, 1936, *Anuario administrativo*, 1936, II, pp. 1804-05.

[45] Bolivia exported a smaller tonnage of tin in 1936 than in 1935 and underexported her tin quota by 39 per cent. Bolivian producers were unable to produce the tin quota because it was based on an overassessment of Bolivia's long-run tin production capacity. They were sometimes unwilling to produce the quota because they opposed the compulsory delivery of foreign exchange at arbitrary rates to the Government.

[46] A rough index of monetary turnover (cost of living index for La Paz divided by an index of paper money in circulation) indicates that the rate of turnover of the currency may have increased as much as 25 per cent during the last half of 1936.

[47] Banco central, *Memoria*, 1936, p. 33.

[48] The curb rate was reported to have reached Bs 200 to the pound sterling at one point during August, 1936. *Ibid.*

public during September by depreciating the official selling rates, imposing additional import restrictions, suppressing the curb market, and raising the amount of foreign exchange to be delivered by exporters to the Government.

The reduction in Bolivia's international reserves during 1938 was the result of a sharp increase in merchandise imports as well as of the fall in export receipts discussed above. Detailed analysis of the imports which increased indicates that they probably arose from the spending abroad by local and departmental governments for construction materials and equipment and by the general public for consumers' goods.[49] Thus, the increase in imports was a consequence of Government fiscal policy and of the increase in bank loans, which provided the public and public bodies with ample local currency to increase the volume of imports in spite of higher prices.[50] Available purchasing power would not have been able to increase imports, however, had a strong effort been made by the Government to control imports directly.[51] Rationing of imports by exchange control,

[49] The rate of turnover of the currency also increased in 1938 compared with 1937.

[50] The Central Bank's selling rate (weighted average of multiple rates) depreciated from Bs 83 to the pound sterling in 1937 to Bs 124 in 1938; the curb rate depreciated from Bs 119 to Bs 148, respectively.

There is no series of Bolivia"s import prices by which an index of imports in constant prices can be computed. In part, this difficulty is lessened by reporting the trade data in pounds sterling (Table 2). Wholesale prices fell in the United Kingdom, so that sterling expenditures in the United Kingdom in 1938 equivalent to those in 1937 should have raised the volume of Bolivian imports. It is not possible, however, to make such a statement with respect to Bolivia's imports from the United States, since sterling depreciated slightly against the dollar during the last part of 1938, and this must be set against the decline in the United States wholesale price index during the year. The presumption is that the volume of Bolivia's imports increased in 1938 over 1937.

[51] On March 22, 1938, the Central Bank sent a memorandum to the Minister of Finance recommending the following: (1) that the national Government so order its finances that a substantial surplus be made available to the federal budget; (2) that public works be temporarily discontinued throughout the country in so far as possible; (3) that the national Government reduce its expenditures abroad; (4) that private bank credit be reduced; (5) that imports be limited to the minimum requirements of the country; (6) that the Central Bank, in agreement with

abandoned in 1937, was not effectively reinstituted in 1938.[52] It was probably inexpedient politically to revive the exchange control boards so soon after their demise and to restrict imports severely.[53]

CONCLUSIONS

(1) Bolivia undoubtedly experienced a net loss of international reserves (valued in sterling or in dollars) during the thirties.

(2) Tin was an important determinant of Bolivia's international reserve position throughout the decade, since tin export receipts accounted on the average for three-quarters of Bolivia's merchandise exports. Furthermore, actual and anticipated changes in the price of tin and in the tin export quota, by changing the rate of turnover of money, affected on occasion the volume of spending on imports.

(3) Tin control on balance was a factor tending to improve Bolivia's international reserve position taking the period as a whole, but the qualifications to this statement made below are indeed important.

(4) Tin control was at best a neutral factor in Bolivia's tin export receipts during 1931, and may have caused lower export receipts during 1932 than there would have been without control.

(5) Tin control failed to stabilize Bolivia's tin export receipts once it secured a grip on the world market. In part, this was attributable to internal factors (for example, in 1936)

the commercial banks, be given complete control over the purchase and sale of exchange, with a view to reducing unnecessary imports and making an equitable distribution of available exchange. Banco central, *Boletin*, X (Oct., 1937-March, 1938), 5-7.

[52] An Exchange Classification and Distribution Committee was established informally in March, and formally in June, but apparently did not operate to reduce imports. *El Diario* (La Paz), March 12, 1938. See also Supreme Decree, June 11, 1938, Banco central, *Boletin*, X (April-June, 1938), xiii-xviii.

[53] A moderate financial panic developed in January, 1939, which the Minister of Finance attributed among other things to the rumor that imports were to be restricted. He assured the people that the Government would not do so. *El diario*, Jan. 25-26, 1939.

which affected the ability and the willingness of the miners to export the tin quota. In part, however, it was the failure (as in 1937-38) of the ITC to cope with a sharp reduction in the world demand for tin.

(6) Some of the gains in tin export receipts from tin control accrued to investor countries in the form of dividend payments or were held by producers in idle balances abroad. During the Chaco War, the Government succeeded in turning much of the additional exchange to its own ends by use of exchange control. The gains were spent abroad for war materials and other expenses arising out of the war. After 1935, as exchange control was gradually relaxed, the gains accrued to investor countries in greater proportion than during the Chaco War. Any gain accruing to Bolivia was used to amortize Government obligations payable in sterling to the tin producers and to increase imports of foodstuffs and manufactured products.

(7) Tin control was by no means the only important determinant of Bolivia's international reserve position. During the Chaco War, Government war expenditures abroad coupled with internal debt financing from the Central Bank swelled import requirements in spite of exchange control and higher prices, consumed any gains in export receipts derived from the ITCS during 1933-34, and almost exhausted the Central Bank's international reserves by the end of the war. During the post-war period, Government spending abroad was overshadowed by inflationary spending at home; as incomes increased, spending on imports increased. Neither exchange depreciation nor the vacillating Government application of exchange controls and import restrictions was adequate to dam up this flow of purchasing power. In general, one wonders whether Government mismanagement of fiscal policy, monetary policy, and import policy was not aided and abetted by the assurance that tin control would always manage to raise Bolivia's tin export receipts sufficiently and in time to make more fundamental adjustments temporarily unnecessary.

These conclusions throw some light on the case advanced for ICCAs that they ". . . enable . . . countries to find solutions to particular commodity problems without resorting to unilateral action that tends to shift the burden of their problems to other

countries." [54] Edward S. Mason has stated more specifically that ". . . international control of a commodity in foreign trade is sometimes necessary, and that, in the absence of common action, practices more restrictive of international trade than those inherent in the control scheme are likely to be adopted." [55] These statements amount, in effect, to the argument that ICCAs, like tariffs, quantitative restrictions, exchange control, and exchange depreciation, constitute a method of protecting the balance of payments and, more important, the best method in so far as the effect on international trade is concerned. Bolivia's experience under the ITCS prompts certain observations with respect to this position.

As indicated in the conclusions above, there is much to be desired in the effectiveness with which ICCAs gain and maintain any given level of export receipts for a producing country. Bolivia's experience under the ITCS is in fact an unduly favorable example from which to generalize, since it tends to overemphasize the effectiveness of an ICCA in raising the total export receipts of a producing country. Continued overassessment of Bolivia's tin producing capacity in the successive ITCSs resulted in the underexport (by 33 per cent on the average) of Bolivia's tin quotas between September, 1935, and January, 1938, and during the last six months of 1939. As a consequence, Bolivia's tin export receipts were supported by a price of tin maintained by restriction in other Agreement countries, while Bolivia herself was not forced to restrict her own exports. Furthermore, of the ICCAs attempted to date, the ITCSs is usually classified as one of the few schemes which were successful in raising the price of the commodity concerned and

[54] U. S. Department of State, *Proposals for Expansion of World Trade and Employment* (Washington: Government Printing Office, 1945), p. 20. This explicit statement is not contained in the *Havana Charter for an International Trade Organization*, but the more general wording of the *Havana Charter* (especially, Article 55) can clearly be construed as including the substance of the above statement. See United Nations Conference on Trade and Employment, *Final Act and Related Documents* (Havana: United Nations, 1948, II D. 4), p. 39.

[55] Mason, *op. cit.*, p. 4; see also pp. 239-40.

maintaining it at remunerative levels.[56] Also, tin export receipts undoubtedly constitute a greater percentage of total export receipts for Bolivia than for other tin producing areas or than do the export receipts from single commodities for other undeveloped countries. Ordinarily, then, not one but a whole complex of ICCAs, many of which on the basis of past experience would not operate with the effectiveness of the ITCS, would be required to prevent a country's resort to "unilateral action." In fact, if the demand for these commodities were not relatively inelastic, if the control authority could not secure a firm grip on the world price, and if the lag from the control's decision on quotas to reflection of the decision in the world market were not relatively short, producing areas might be forced into unilateral action because of an ICCA.

If Bolivia's experience is any indication, a country will use ICCAs in addition to, rather than in lieu of, existing techniques for protecting its balance of payments. Capital invested in the production of a commodity in question is frequently owned by foreign nationals. In such cases, the gains accruing from an ICCA will not always be divided between foreign shareholders and the producing country so as to supply adequate foreign exchange to the producing country. Thus, exchange control may be required [57] and although exchange control for this purpose need not be discriminatory nor restrictive as among sources of supply, it presents an excellent opportunity which may not be resisted.[58]

Furthermore, the use of ICCAs to obviate more undesirable trade and payments controls assumes that the producing coun-

[56] See Joseph S. Davis, *International Commodity Agreements: Hope, Illusion, or Menace?* (New York: Committee on International Economic Policy, 1947), pp. 15-19.

[57] The gains in foreign exchange accruing to producers from an ICCA could, of course, be diverted to the Government by some sort of excess profits tax, which would force producers to convert a greater proportion of their foreign exchange receipts into the domestic currency than is their custom. In view of the difficulty of administering such a tax, the writer believes that most undeveloped countries would find it more economical to accomplish the same objective by exchange control.

[58] I hope to show in a later paper that for producing countries exchange depreciation is a useful adjunct to an ICCA.

try pursues internal policies which at best do not aggravate a nascent deficit in the balance of payments. But production and export quotas, firmly and severely applied, may result in a domestic economic policy which endangers the balance of payments. Low production quotas (in 1933, the Bolivian quota was 33 per cent of 1929 production) may create unemployment: The government may well be forced under these circumstances to increase its expenditures to reemploy the men in public works. These expenditures may be financed by new money, and higher incomes may weaken the balance of payments that the ICCA was designed to strengthen. At best, higher incomes will lead to depreciation of the exchange rate, direct control of imports, or both. Although Bolivia presumably will join the International Trade Organization, the obligation she will assume as a member will not prevent her from safeguarding her balance of payments by resort to quantitative restrictions, if the balance of payments deficit results from ". . . domestic policies directed toward the fulfillment of a Member's obligations . . . relating to the achievement and maintenance of full and productive employment . . ." [59]

[59] United Nations Conference on Trade and Employment, *op. cit.*, p. 19.

Theses on Latin-American Economic History in the Library of the University of Chicago

By Martha-Belle Bowers

Not many theses were written on any subject in the first years after the founding of the University of Chicago in 1891, and it was not until 1914 that a monograph on some aspect of Latin America economics was presented for a degree.

The following bibliography contains seventy theses on Latin-American economic history and represents the research of students at the University for a period of about thirty years. It includes papers presented for the degrees of master of arts, master of science, and doctor of philosophy. Most of these theses were written for the departments of geography, history, and international relations. The majority of them were presented in the period between 1936 and 1949 and nearly all of them after 1920.

Perhaps the most important subject touched on has been industry and direct investment in industry. As would be expected, the general area of Latin America has been dealt with more often than any particular region. However, Mexico and Argentina have been emphasized also.

Amill, Viva Rainey. "Development of Transportation and Telecommunication in El Salvador." M. A. 1947.

Anderson, Marion Pitner. "The Nuevo Loredo-Mexico City Highway in Its Natural and Cultural Setting." M. A. 1945.

Anderson, Robert Lewis. "Efforts to Emancipate Rural Labor in Mexico: An Outline Survey." M. A. 1939.

Anderson, Robert William. "Motor Vehicles and New Highways in Latin America: A Study of the Impact of Foreign Capital and Technology." M. A. 1948.

Baker, Estelle Hukel. "Land Occupance in Argentina." M. A. 1940.

Benton, Ruby Marion. "The Penetration of British Capital into Argentina, 1873-1914." M. A. 1926.

Bogue, Clara. "Trade Between the United States and the West Indies After the Revolution, 1783-1865." M. A. 1921.

Bowers, Martha-Belle. "The Dawn of Manufacturing in Peru." M. A. 1946.

Boyd, Jack Ireland. "Cuban-American Economic Relations, 1898-1907." M. A. 1947.

Bream, Charles Gray. "American Munitions-Makers in Latin America." M. A. 1939.

Britton, Robert Leevern. "The Cattle Industry of Argentina." M. S. 1930.

Brown, Joseph Robert. "Early British Investments in the Chilean Nitrate Industry." M. A. 1949.

Buls, Erwin Julius. "Rural Occupance in Chile." M. S. 1944.

Cabanillas, Berta. "A Survey of the Bread-Making Industry in Puerto Rico." M. A. 1935.

Caldwell, Elward Maurice. "Economic Conditions in Puerto Rico, 1898-1920." M. A. 1930.

Califf, Dorothy Greta. "A Survey of the Travel Facilities from the United States to Latin America, with Special Attention to the American Merchant Marine." M. A. 1940.

Campbell, David Stephen. "The Geography of the Coffee Industry of Puerto Rico." Ph. D. 1947.

Cooley, James Madison Love. "Trade Between New England and the West Indies in the Colonial Period." M. A. 1918.

Crocker, Joan Catherine. "The Pan American Highway." M. A. 1939.

Davis, Harold Eugene. "Oil Legislation in Mexico Since 1917." M. A. 1927.

Davis, Harold Maurice. "Petroleum Interests of the United States in Mexico." M. A. 1947.

Dougan, J. Luther. "The Peruvian Corporation." M. A. 1947.

Eaton, Mary Alice. "Changes in Land Occupance in Puerto Rico, 1898-1930." M. A. 1936.

Ellingsen, June Norma. "Mexico's Cotton Textile Industry." M. A. 1946.

Faust, George Huddleston. "Economic Relations of United States and Colombia, 1920-1940." Ph. D. 1946.

Finney, Richard Anson. "The Influence of United States Tariffs and Quotas Upon the Cuban Economy, 1902-1939." M. A. 1948.

Foster, Alice. "Geography of the Industrial District of Orizaba, Mexico." M. S. 1921.

Galle, Kurt Raphael. "Early Commercial Relations of the United States with Hispanic America." M. A. 1924.

Garvin, Clarence Alexander. "British-Owned Land Companies in Argentina." M. A. 1948.

Grede, John Frederick. "Rise and Decline of British Investments in Argentina, 1913-1944." M. A. 1947.

Hearst, Helen Louise. "The Coffee Industry of Central America." M. S. 1929.

Hendricks, Glen Hayden. "Geographic Aspects of the Sheep Industry of Argentina." M. S. 1933.

Henry, Milton. "British Utility Investments in Argentina." M. A. 1947.

Hewitt, Clyde E. "Venezuela and the Great Powers: A Study in International Finance and Diplomacy." Ph. D. 1948.

Hopkins, Phoebe. "Cinema Invasion of Latin America." M. A. 1947.

Ice, Orva Lee, Jr. "British Direct Investments in Brazil Up to 1901." M. A. 1948.

Inglish, Leona Frances. "The Transportation System of the United Fruit Company." M. S. 1932.

Jackson, Harry Franklin. "The Technological Development of Central America, 1823-1913." Ph. D. 1948.

Jones, Wellington Downing. "Present Status and Future Possibilities of Agricultural Land Utilization in Patagonia." Ph. D. 1914.

Keithan, Elizabeth Frederica. "The Cacao Industry of the Major Producing Regions of Latin America." M. S. 1935.

Klove, Robert Charles. "Pastoral and Agricultural Occupance in Uruguay." M. S. 1937.

Kohnhorst, Gertrude. "Trade Between the Southern Colonies and West Indies to 1783." Ph. B. 1922.

Kwan, Kwong Pui. "A Study of Early Sino-Latin American Trade Relations, 1565-1818." M. A. 1942.

Leahy, Maurice Francis. "Economic Relations of the United States with Peru Under Augusto B. Leguía, 1919-1930." M. A. 1941.

Lestina, Mildred Letita. "Tobacco Plantations of the Vuelta Abajo District, Western Cuba." M. S. 1937.

Loewenfeld, Eva Marie. "The Guayaquil and Quito Railway." M. A. 1944.

McConaughy, John Bothwell. "Dollar Bonds of South American Governments, 1919-1930." Ph. D. 1943.

Mahoney, Elizabeth Jane. "The Establishment of the Receivership for the Dominican Republic, 1904-1907." M. A. 1942.

Melby, John Fremont. "Rubber River: Being an Account of the Rise and Collapse of the Amazon Boom." Ph. D. 1941.

Newton, June. "The Labor Movement of Colombia." M. A. 1945.

Pfeiffer, Jack Beaumont. "The Dawn of Manufacturing in Chile." M. A. 1945.

---------- "The Development of Manufacturing Industry in Chile, 1820-1940." Ph. D. 1947.

Pine, John Crane. "The Honduras Mining Boom, 1880-1900." M. A. 1947.

Pletcher, David Mitchell. "American Capital and Technology in Northwest Mexico, 1876-1911." Ph. D. 1946.

---------- "The Oilmen in Venezuela: A Phase of Exploitation." M. A. 1941.

Preskill, Leonard Samuel. "United States Investments in Chile." M. A. 1941.

Read, Mary Josephine. "The Motor Road Pattern of Mexico." M. S. 1932.

Rossiter, William Michael. "Foreign Enterprise and Electric Utilities in Mexico." M. A. 1949.

St. Angel, Frank George. "British Investment in Brazilian Railroads, 1880-1913." M. A. 1948.

Santana, Arthur Ferdinand. "North American Railway Pioneers in Western South America." M. A. 1942.

Schmidt, Royal Jae. "British Capital and Argentine Railroad Enterprises, 1860-1945." M. A. 1947.

Shaw, Mary Gwen. "The Character and Utilization of the Mexican Forests." M. S. 1930.

Stackhouse, Heywood Herbert. "International Economic Relations of Argentina, 1939-1948." M. A. 1949.

Stewart, Jack. "Early Wireless and Broadcasting in Latin America." M. A. 1947.

Straub, Suzanne. "American Enterprises in Argentina, 1929-1940." M. A. 1946.

Timmons, Joe T. "The Impact of World War II on British Investments in Latin America." M. A. 1949.

Ungashick, Jane Alice. "Rural Patterns in Mexico." M. S. 1939.

Uttley, Marguerite Elizabeth. "Land Utilization in the Canóvanas Sugar District, Puerto Rico." Ph. D. 1937.

Vaky, Viron Peter. "Latin America and the Foreign Economic Policy of the United States, 1945-1948." M. A. 1948.

Yoder, Lee Owen. "The Cattle Industry in Colombia and Venezuela." M. S. 1926.